



Carnegie Mellon University  
Software Engineering Institute

# Process Maturity Profile

## Software CMM<sup>®</sup> CBA IPI and SPA Appraisal Results 2003 Mid-Year Update

September 2003

We could not produce this report without the support of the organizations and lead appraisers who reported their appraisal results to the SEI<sup>SM</sup>.

Our many thanks for their continuing cooperation with our data collection and analysis efforts.

Software Engineering Measurement and Analysis Initiative

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# Outline

**Introduction**

**Current Status**

**Community Trends**

**Organizational Trends**

**Summary**



# Introduction - 1: Purpose and Source

**Characterize the process maturity of the software community**

**This briefing uses information from:**

- **CMM based Appraisals for Internal Process Improvement (CBA IPIs) and**
- **Software Process Assessments (SPAs)**

**Please visit:**

**[http://www.sei.cmu.edu/sema/profile\\_about.html](http://www.sei.cmu.edu/sema/profile_about.html)**

**for additional information or questions you may have about this briefing before contacting the SEI directly**

**A CMMI® version of this briefing is also available through the Web address above**



## Introduction - 2: Data Description

**CBA IPIs and SPAs conducted since 1987 through June 2003 and reported to the SEI by July 2003**

- **2,835 appraisals**
- **2,351 CBA IPIs**
- **484 SPAs**
- **2,150 organizations**
- **715 participating companies**
- **544 reappraised organizations**
- **11,823 projects**

**Please refer to: Terms Used in this Report on page 30**



# Introduction - 3: Briefing Contents

This briefing includes three primary sections:

## 1. Current Status

- Snapshot of the software community based on the most recent appraisal, **since 1999**, of reporting organizations

## 2. Community Trends

- Global distribution of appraisals
- Growth in the number of appraisals performed
- Shifts in the maturity profile over time

## 3. Organizational Trends

- Analysis of Key Process Area (KPA) satisfaction
- Time to move up in maturity



# Current Status

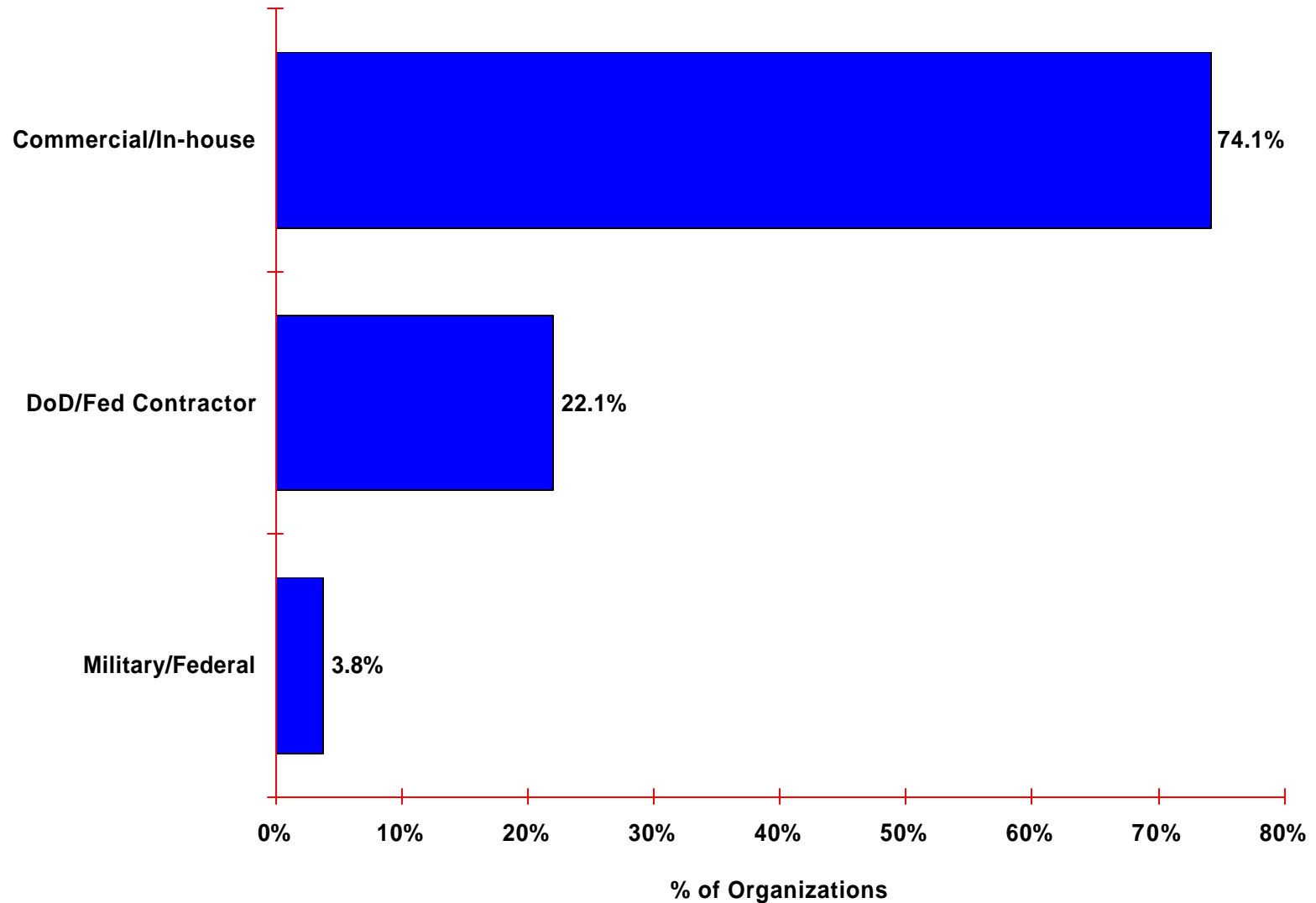
Appraisals conducted **from** 1999 through June 2003

- 1,342 organizations
- 570 participating companies
- 6,733 projects
- 52.2% offshore organizations

Please refer to: Terms Used in this Report on page 30



# Reporting Organization Types

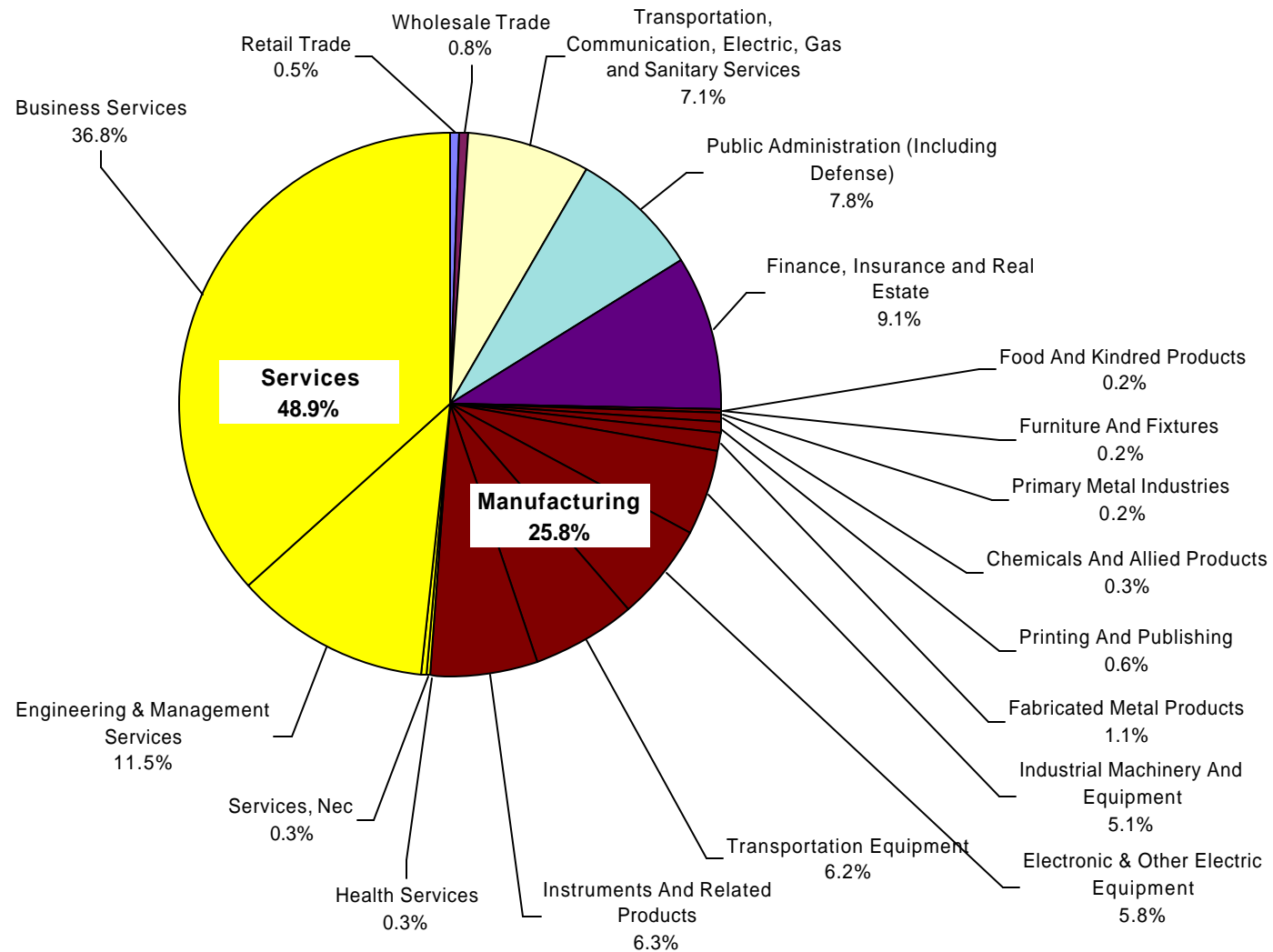


Based on 1,342 organizations



# Types of Organizations

Based on Primary Standard Industrial Classification (SIC) Code

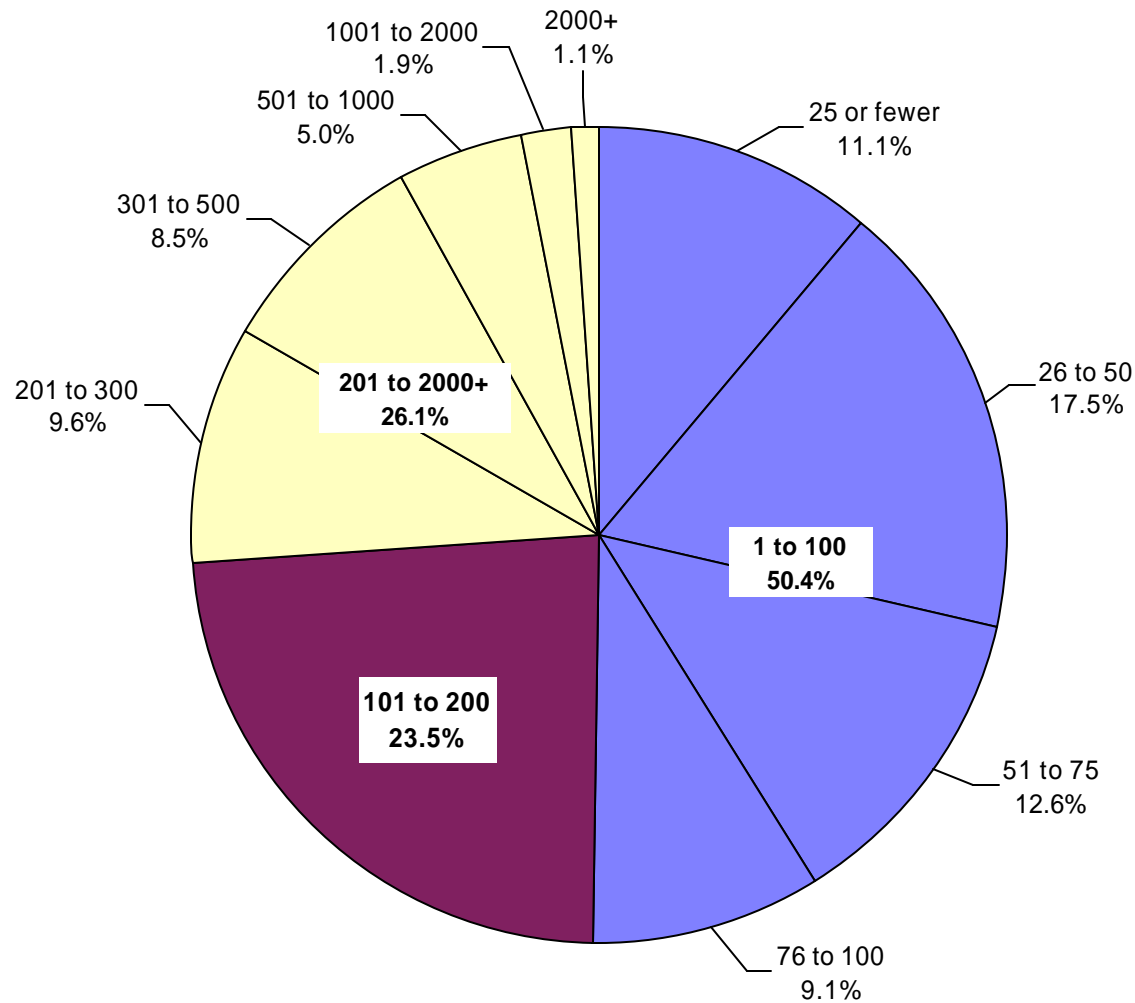


Based on 650 organizations reporting SIC code. For more information visit: <http://www.osha.gov/oshstats/sicser.html>



# Organization Size

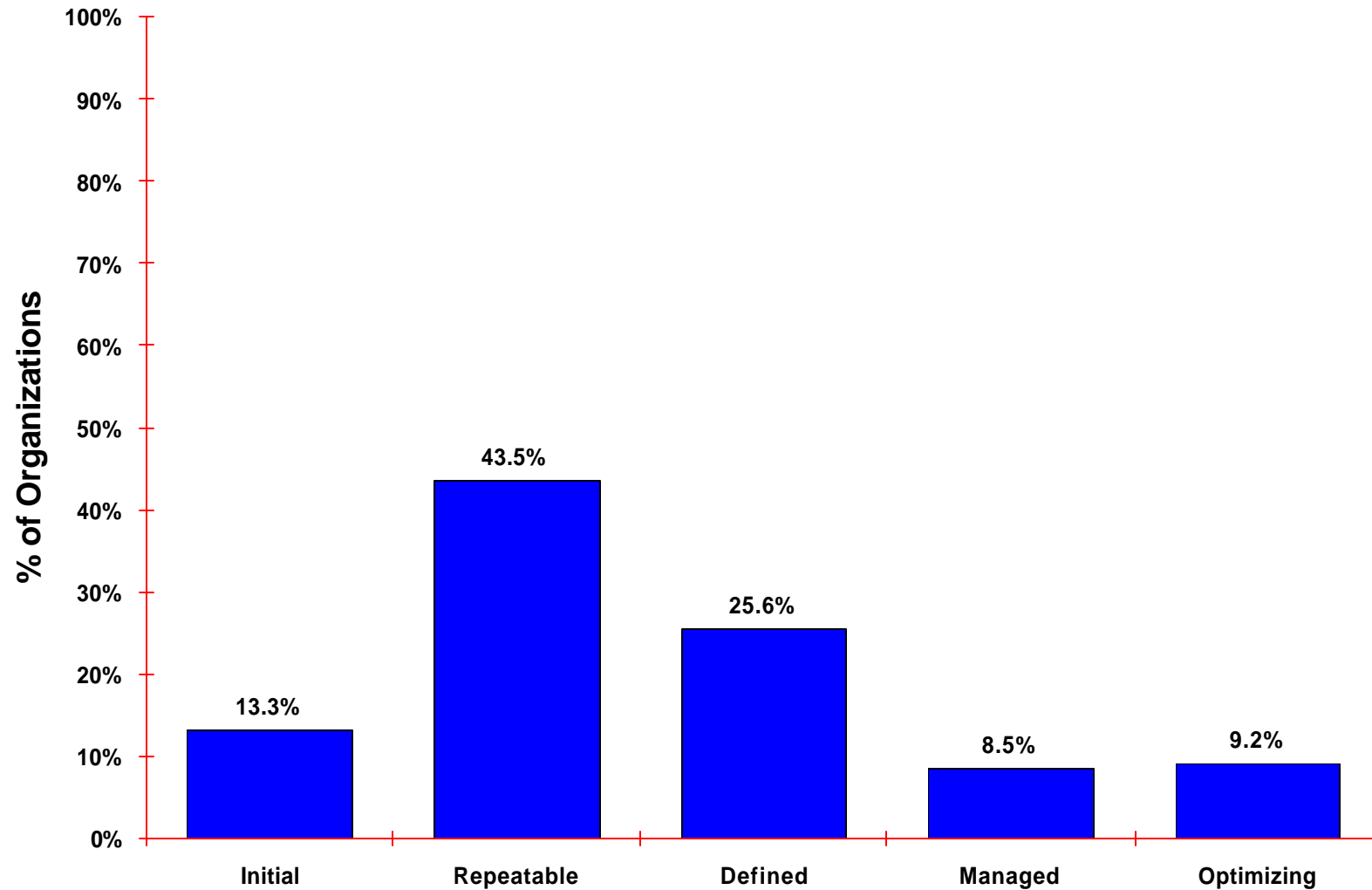
Based on the total number of employees within the area of the organization that was appraised



Based on 1,312 organizations reporting size data



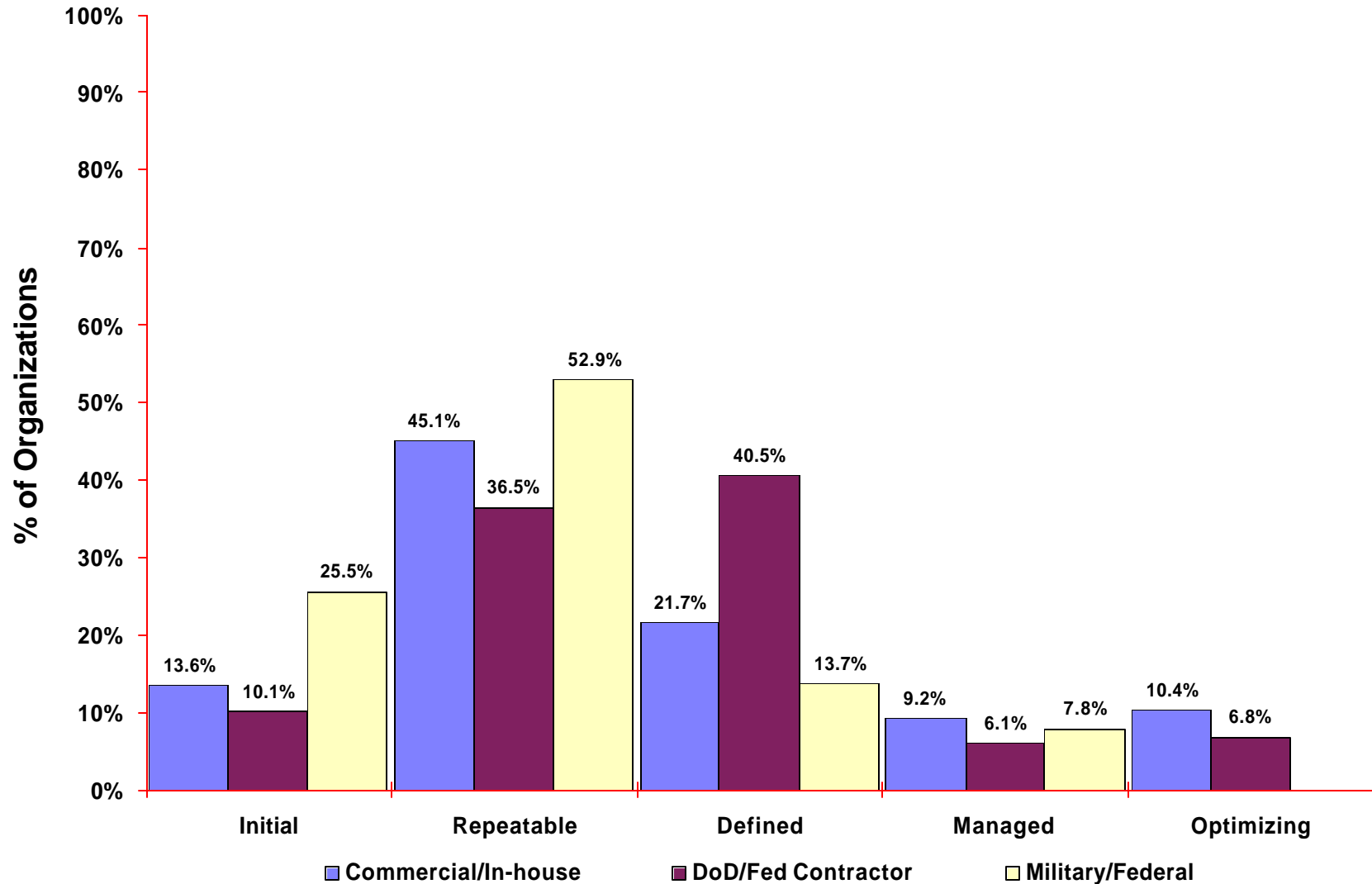
# Organization Maturity Profile



Based on most recent appraisal, since 1999, of 1,342 organizations



# Maturity Profile by Organization Type

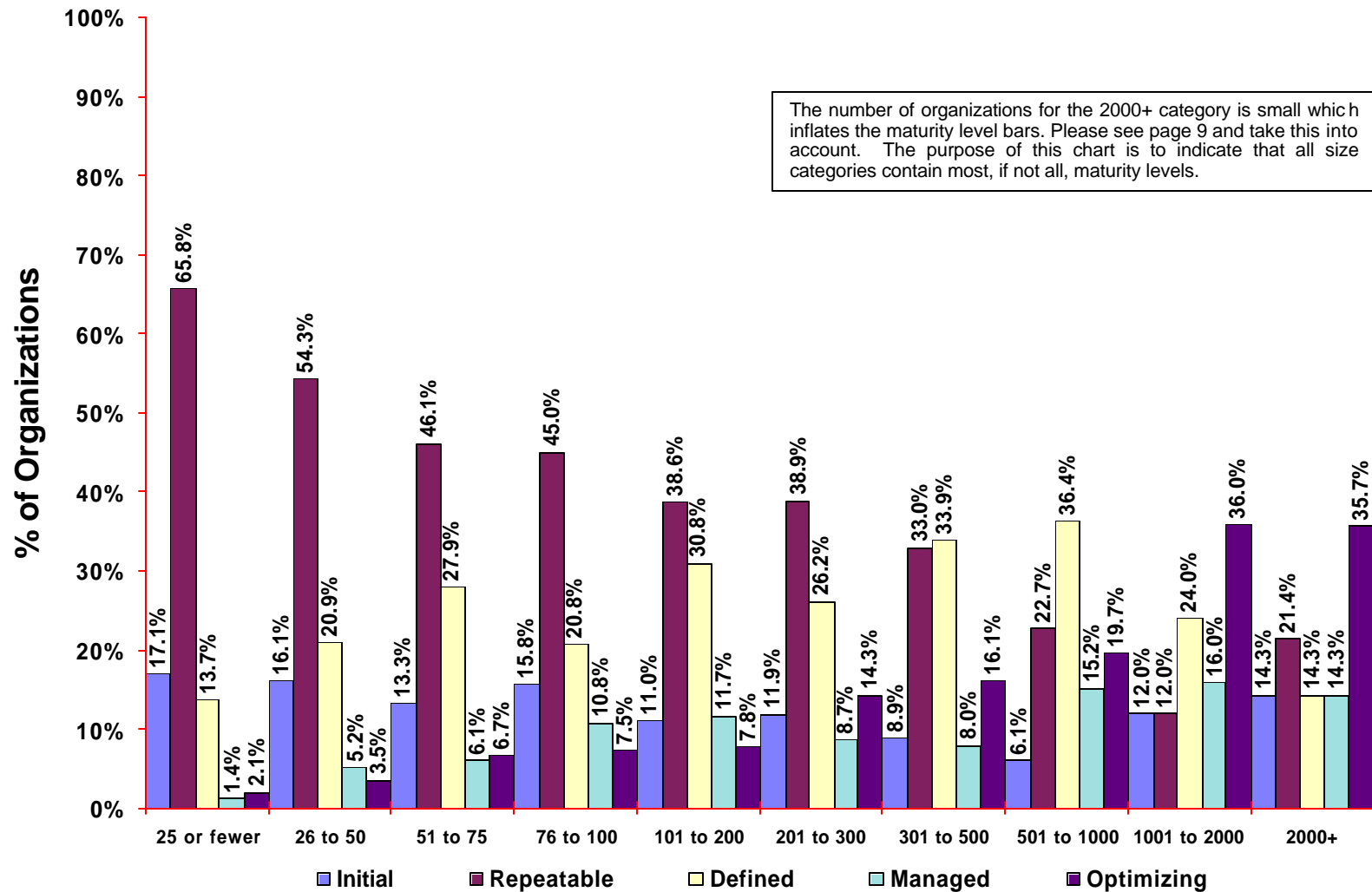


Based on most recent appraisal, since 1999, of 1,342 organizations



# Maturity Profile by Organization Size

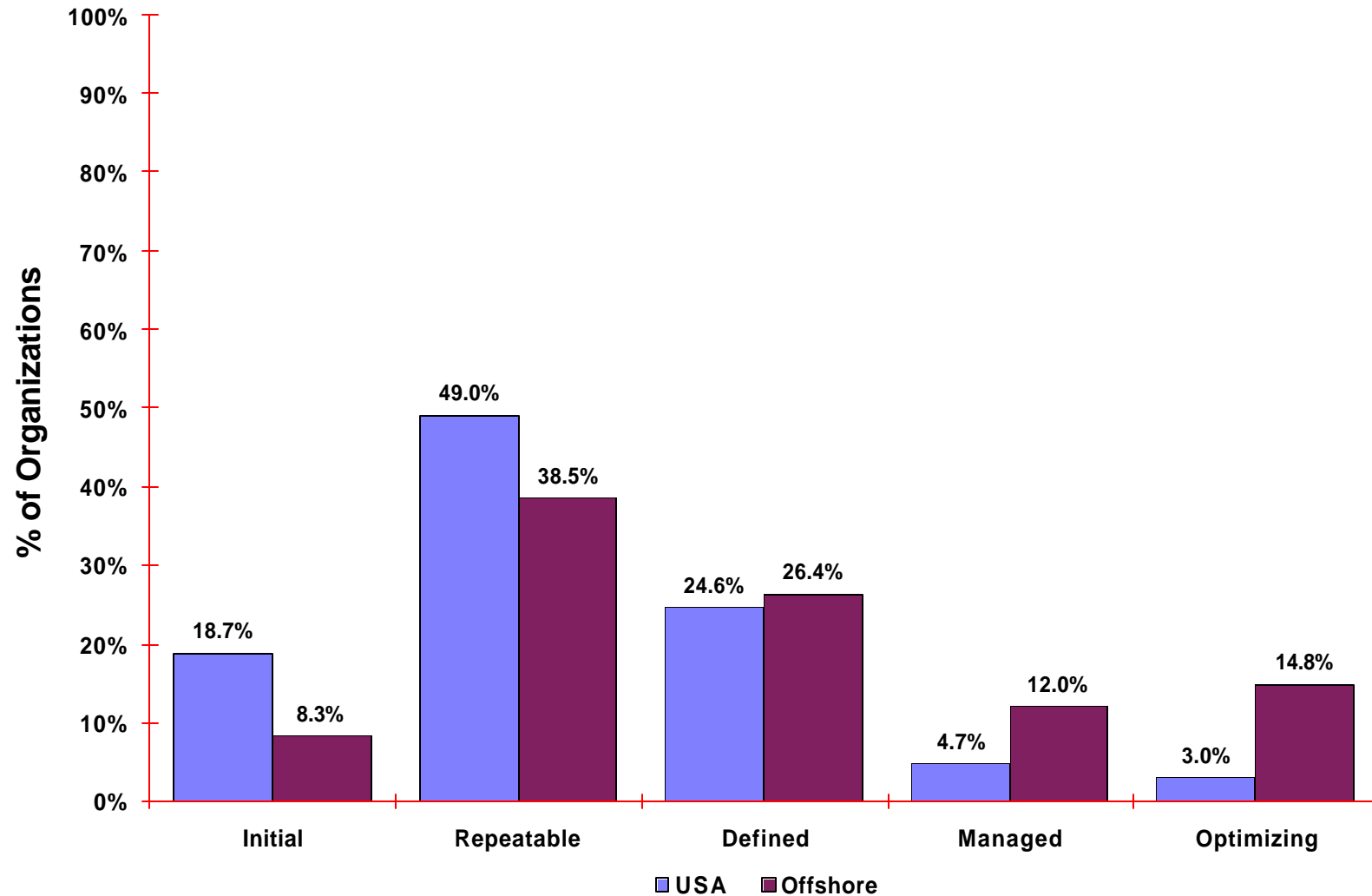
Based on the total number of employees within the area of the organization that was appraised



Based on 1,312 organizations reporting size data



# USA and Offshore Organization Maturity Profiles



Based on **641** U.S. organizations and **701** offshore organizations



# Community Trends

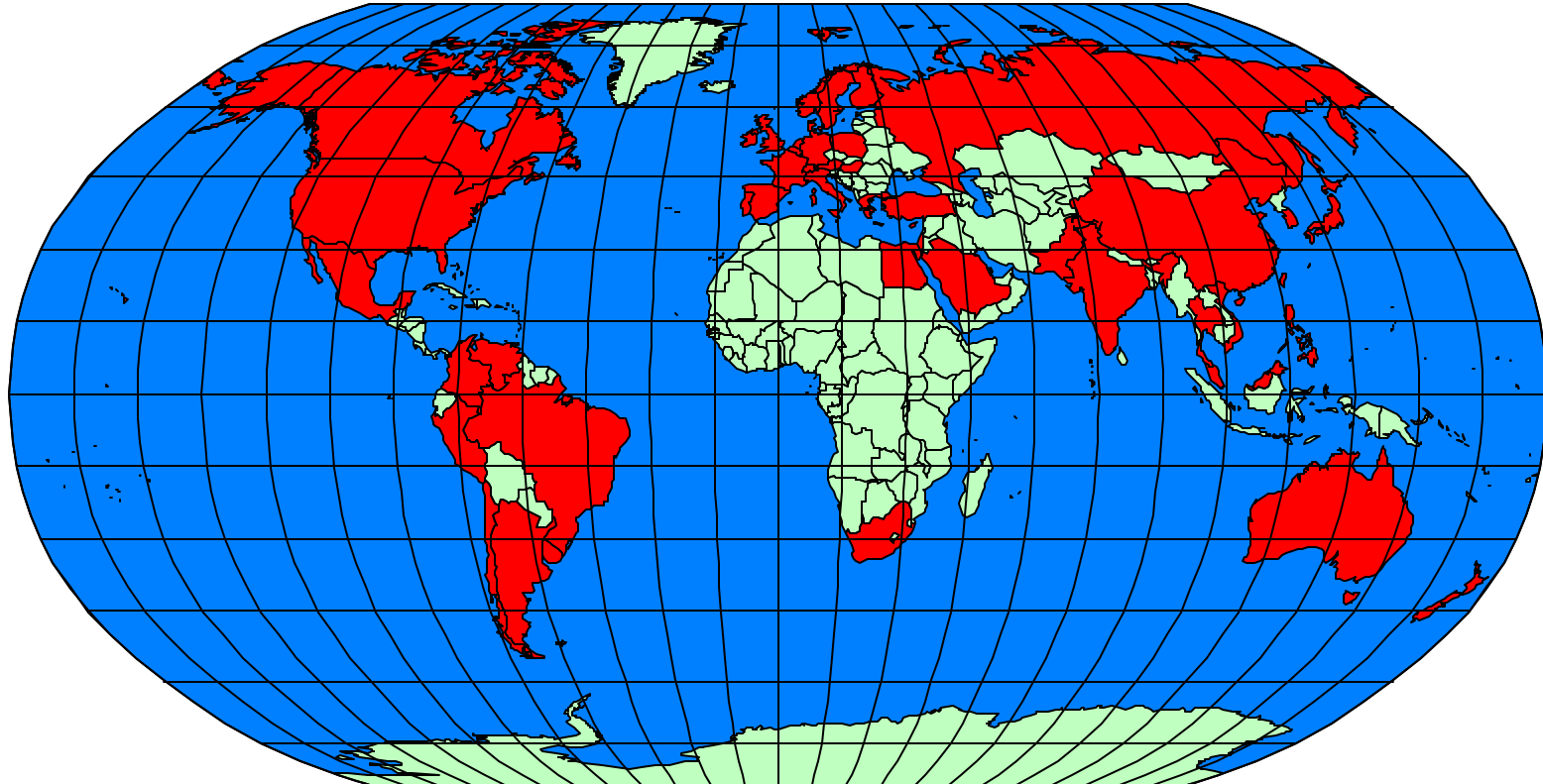
**Appraisals conducted from 1987 through June 2003**

- **2,835 appraisals**
- **2,150 organizations**
- **715 participating companies**
- **544 reappraised organizations**
- **11,823 projects**

**Please refer to: Terms Used in this Report on page 30**



# Countries where Appraisals have been Performed and Reported to the SEI



- |                    |           |             |             |             |              |                |               |
|--------------------|-----------|-------------|-------------|-------------|--------------|----------------|---------------|
| Argentina          | Australia | Austria     | Barbados    | Belgium     | Brazil       | Canada         | Chile         |
| China              | Colombia  | Cyprus      | Denmark     | Egypt       | Finland      | France         | Germany       |
| Greece             | Hong Kong | Hungary     | India       | Ireland     | Israel       | Italy          | Japan         |
| Korea, Republic of | Malaysia  | Mexico      | Netherlands | New Zealand | Norway       | Pakistan       | Peru          |
| Philippines        | Poland    | Portugal    | Puerto Rico | Russia      | Saudi Arabia | Singapore      | South Africa  |
| Spain              | Sweden    | Switzerland | Taiwan      | Thailand    | Turkey       | United Kingdom | United States |
| Uruguay            | Venezuela | Viet nam    |             |             |              |                |               |



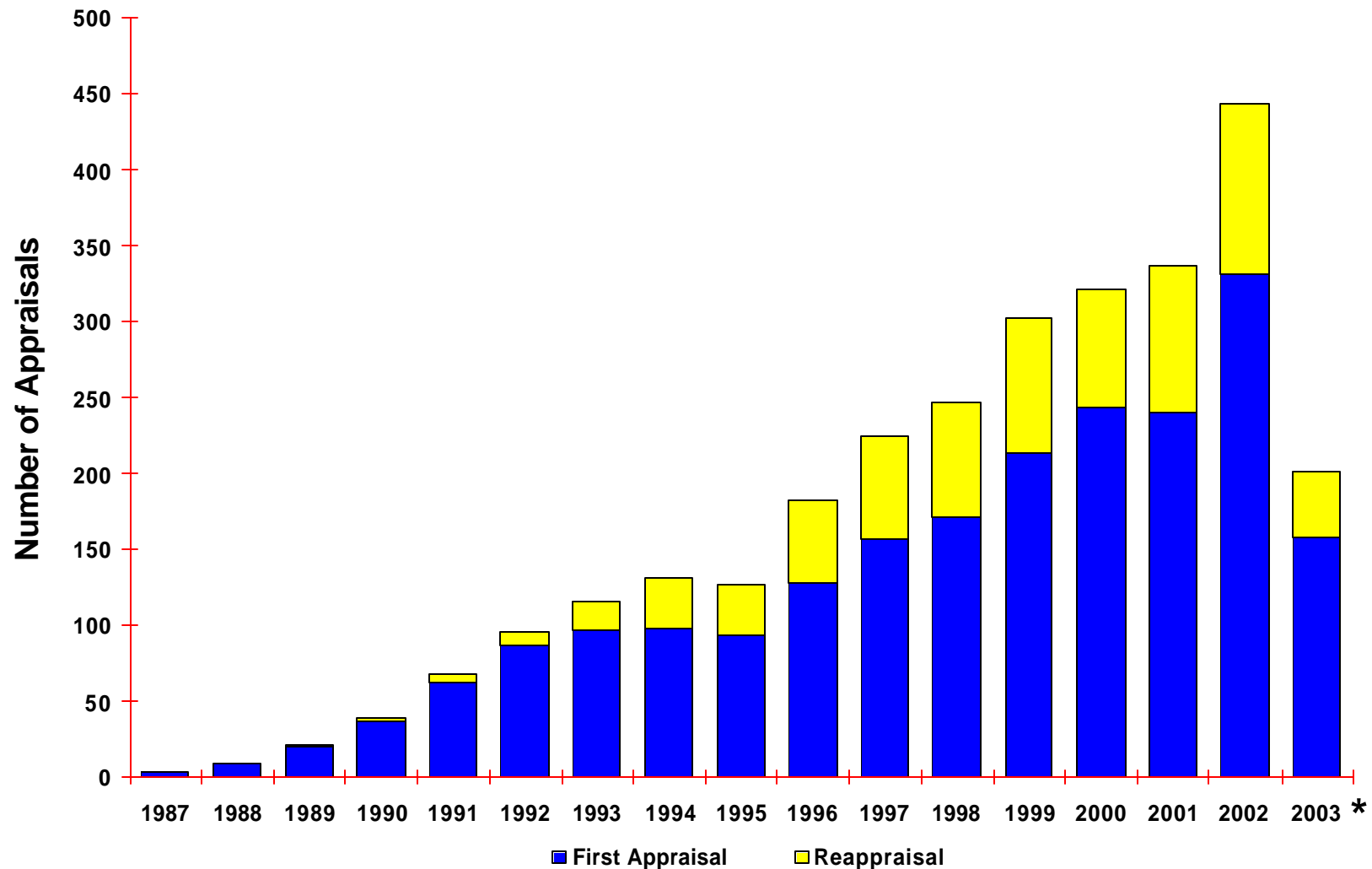
# Number of Appraisals and Maturity Levels Reported to the SEI by Country

Country	Number of Appraisals	Maturity Level 1 Reported	Maturity Level 2 Reported	Maturity Level 3 Reported	Maturity Level 4 Reported	Maturity Level 5 Reported	Country	Number of Appraisals	Maturity Level 1 Reported	Maturity Level 2 Reported	Maturity Level 3 Reported	Maturity Level 4 Reported	Maturity Level 5 Reported
Argentina	10 or fewer						Malaysia	10 or fewer					
Australia	29	Yes	Yes	Yes	No	No	Mexico	16	Yes	Yes	Yes	Yes	No
Austria	10 or fewer						Netherlands	16	Yes	Yes	Yes	No	No
Barbados	10 or fewer						New Zealand	10 or fewer					
Belgium	10 or fewer						Norway	10 or fewer					
Brazil	17	Yes	Yes	Yes	No	No	Pakistan	10 or fewer					
Canada	63	Yes	Yes	Yes	No	Yes	Peru	10 or fewer					
Chile	10 or fewer						Philippines	10					
China	108	Yes	Yes	Yes	Yes	Yes	Poland	10 or fewer					
Colombia	10 or fewer						Portugal	10 or fewer					
Cyprus	10 or fewer						Puerto Rico	10 or fewer					
Denmark	10 or fewer						Russia	10 or fewer					
Egypt	10 or fewer						Saudi Arabia	10 or fewer					
Finland	10 or fewer						Singapore	17	Yes	Yes	Yes	No	Yes
France	114	Yes	Yes	Yes	Yes	No	South Africa	10 or fewer					
Germany	35	Yes	Yes	Yes	No	No	Spain	10 or fewer					
Greece	10 or fewer						Sweden	10 or fewer					
Hong Kong	10 or fewer						Switzerland	10 or fewer					
Hungary	10 or fewer						Taiwan	10 or fewer					
India	294	Yes	Yes	Yes	Yes	Yes	Thailand	12	Yes	Yes	Yes	No	No
Ireland	10 or fewer						Turkey	10 or fewer					
Israel	30	Yes	Yes	Yes	No	No	United Kingdom	124	Yes	Yes	Yes	No	No
Italy	26	Yes	Yes	Yes	No	No	United States	1738	Yes	Yes	Yes	Yes	Yes
Japan	87	Yes	Yes	Yes	Yes	Yes	Uruguay	10 or fewer					
Korea, Republic of	34	Yes	Yes	Yes	Yes	Yes	Venezuela	10 or fewer					
							Viet nam	10 or fewer					

The organization maturity profile chart, page 10, can be created for certain countries using the Interactive Maturity Profile available in the Software Engineering Information Repository Web site. Please visit: <http://seir.sei.cmu.edu>. If you are not already a member of this Web site, please register to join. Registration and use of the site is free.



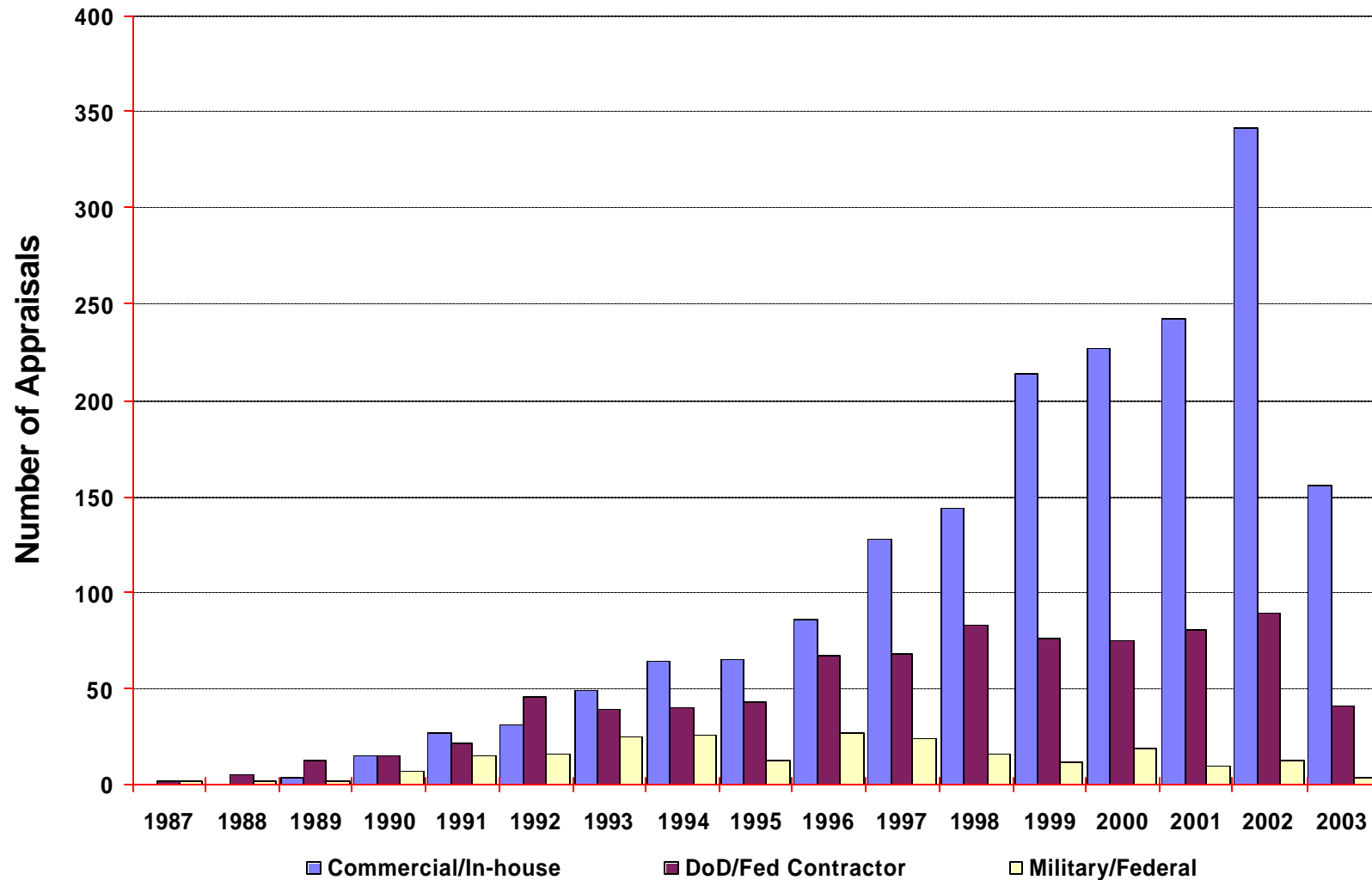
# Number of Appraisals Reported to the SEI by Year



Based on 2,835 appraisals conducted through **June 2003** and reported to the SEI by **July 2003** \*



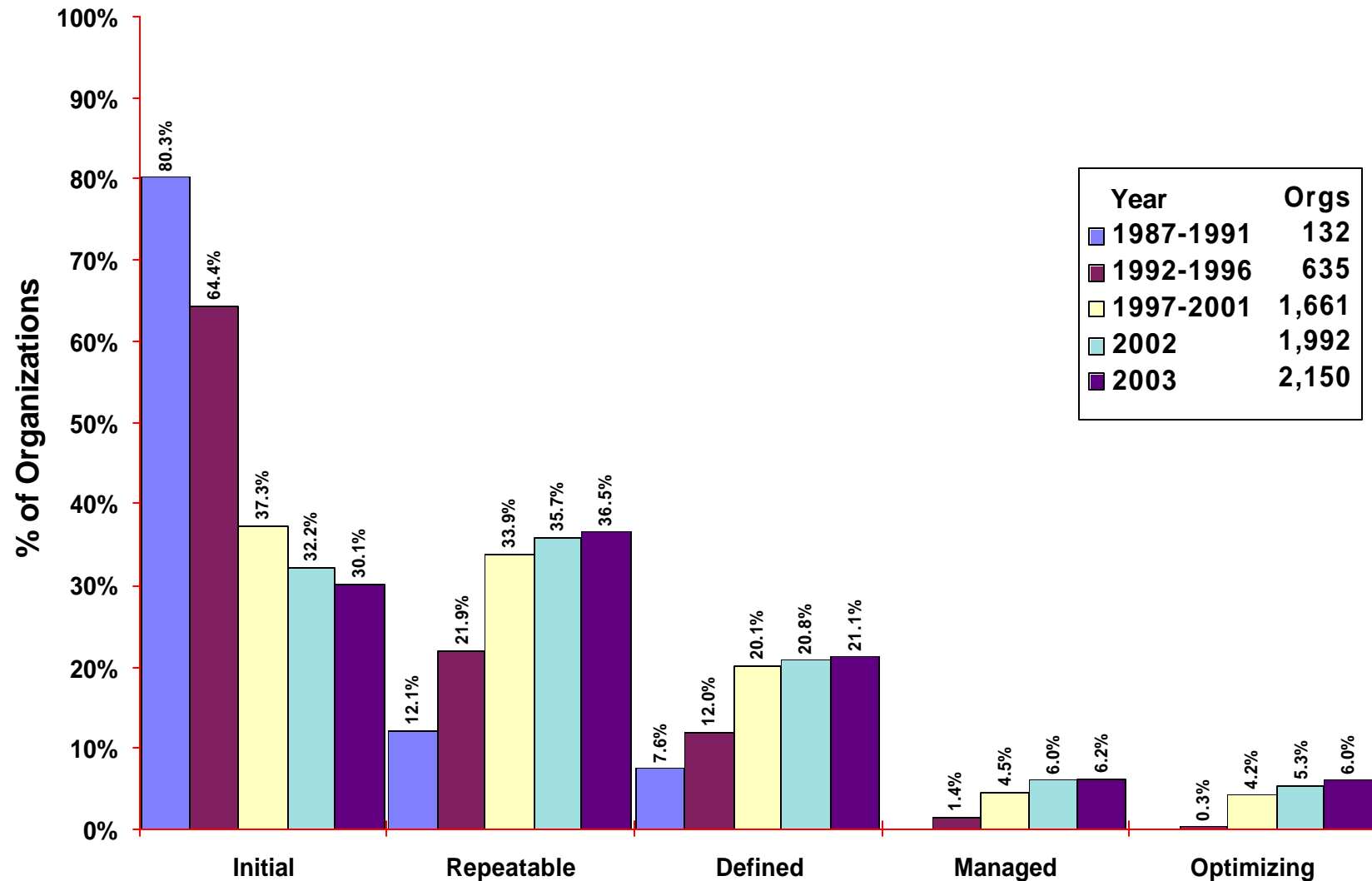
# Number of Appraisals Reported to the SEI by Organization Type and Year



Based on 2,833 appraisals reporting these organization types



# Trends in the Community Maturity Profile



Based on a cumulative view of the most recent appraisals of organizations up through the year indicated. This accounts for the difference from the figures on page 10.



# Organizational Trends

## Appraisals conducted through June 2003

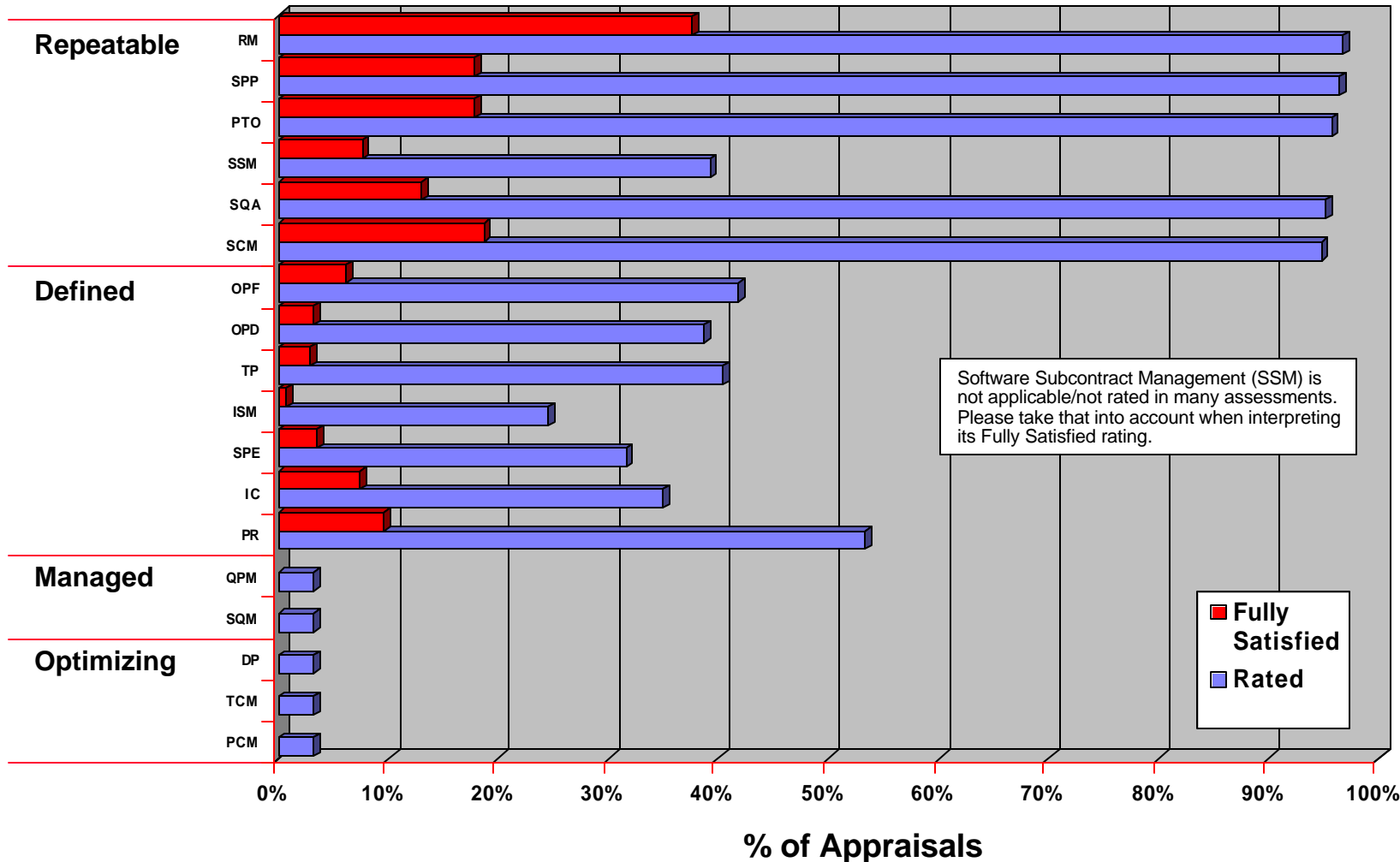
- **1,488 Key Process Area (KPA) profiles**
  - satisfaction of KPAs by maturity level for organizations appraised at levels 1 and 2
- **544 reappraised organizations**
  - accounting for 1,239 appraisals
  - although some organizations conducted multiple reappraisals, only the first and latest appraisals were used in creating the charts on pages 23 & 24

Please refer to: Terms Used in this Report on page 30



# Key Process Area Profiles - 1

## Organizations Appraised at Maturity Level 1

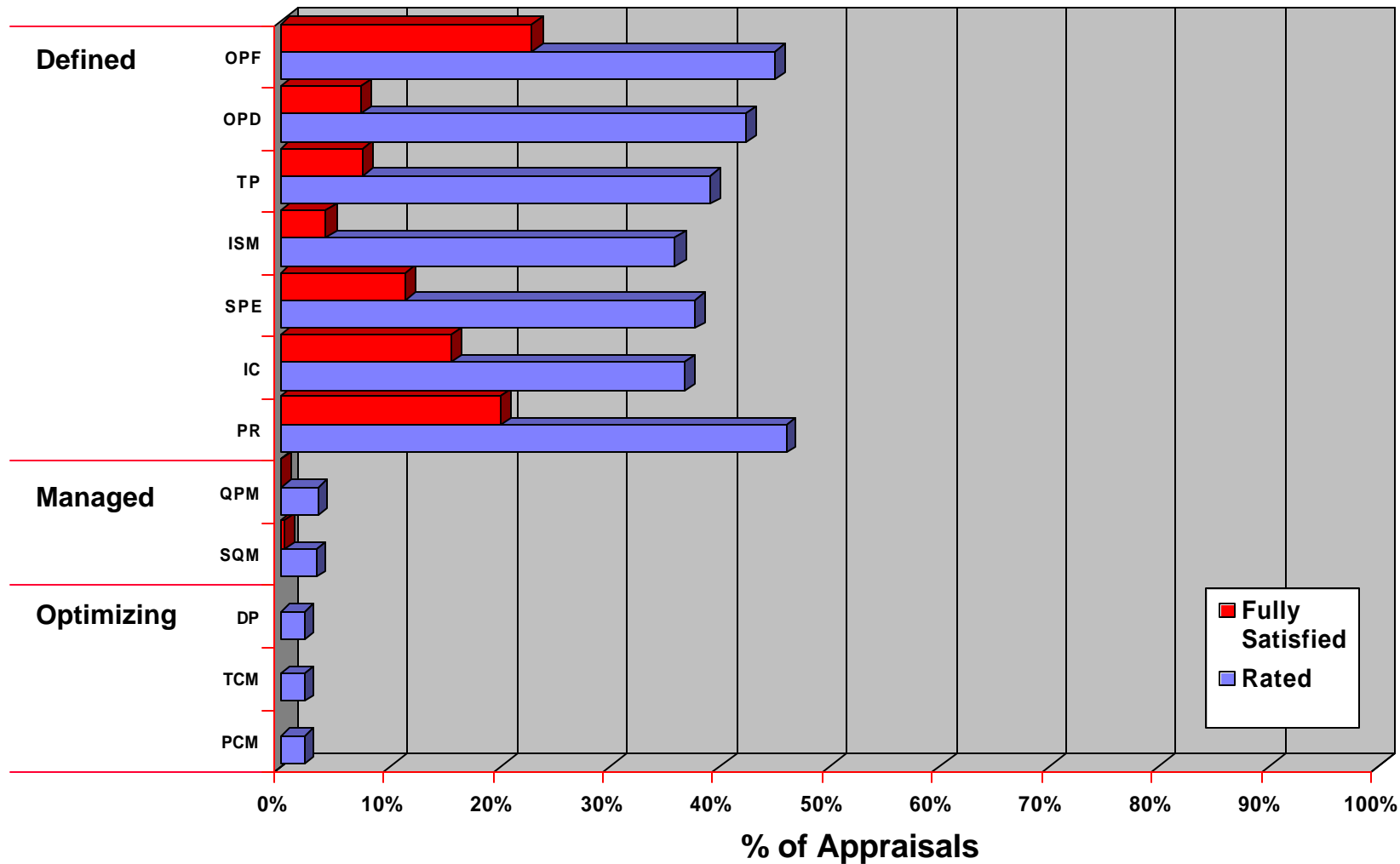


Based on 538 CBA IPI appraisals



# Key Process Area Profiles - 2

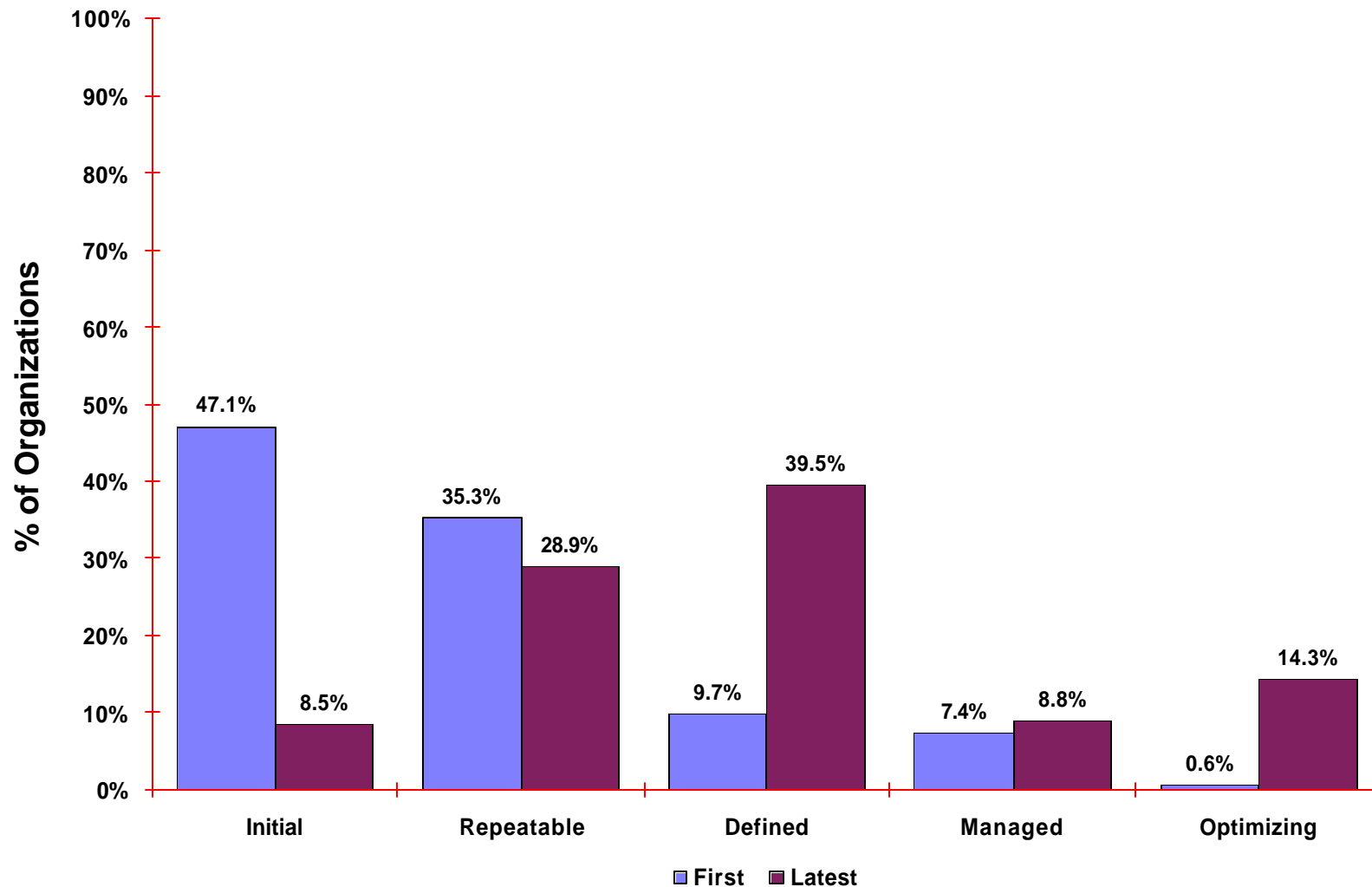
## Organizations Appraised at Maturity Level 2



Based on 950 CBA IPI appraisals



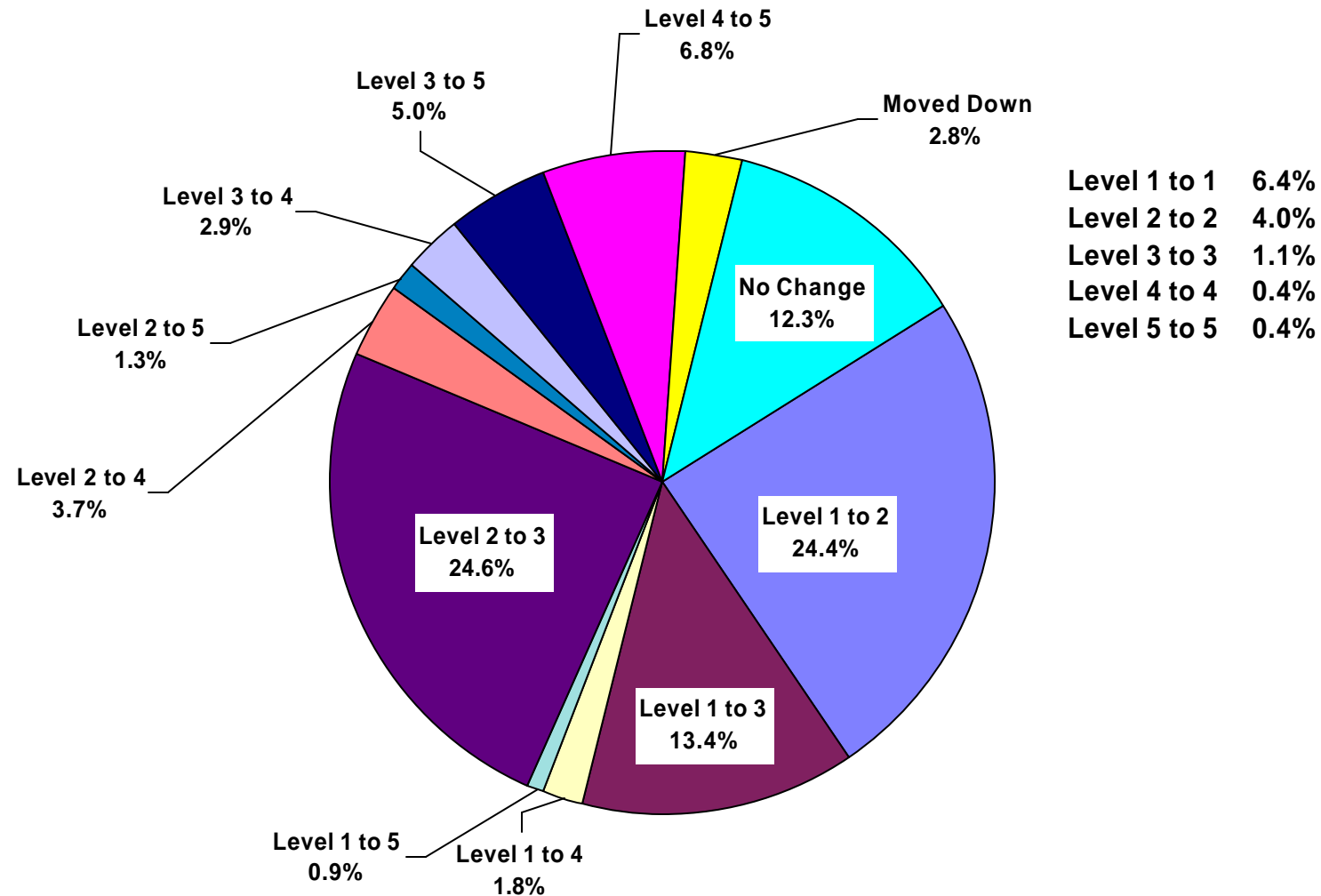
# Maturity Level of First and Latest Appraisal



Based on 544 reappraised organizations using their first and latest appraisal



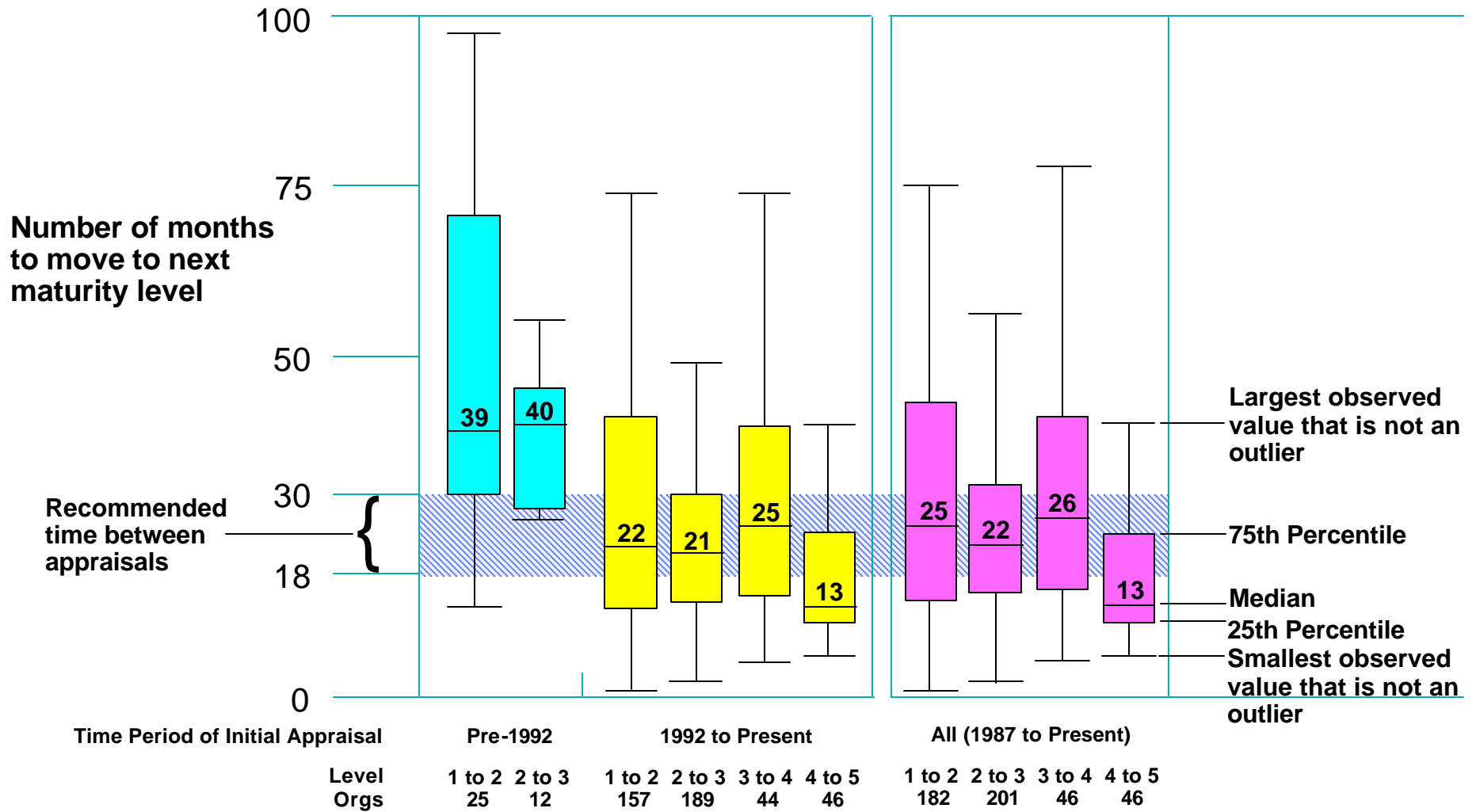
# Reappraisals Change in Maturity Level



Based on 544 reappraised organizations using their first and latest appraisal



# Time to Move Up





# **Maturity Summary - 1**

## **Current Status**

**Commercial and in-house organizations reporting most appraisals**

**Of U.S. organizations, the services and manufacturing industries reported most appraisals**

**Half of the organizations reporting size have 100 or fewer software personnel**

**Some organizations transitioning to CMMI and therefore are not present in charts reporting maturity**

**More offshore appraisals reported than U.S. in this 5 year snapshot**



# **Maturity Summary - 2 Community Trends**

**Overall community profile continues to shift toward higher maturity**

**Fewer level 1 first time appraisals are being reported**



## **Maturity Summary - 3 Organizational Trends**

**Software Quality Assurance is the least frequently satisfied level 2 KPA among organizations\* appraised at level 1**

**Integrated Software Management is the least frequently satisfied level 3 KPA among organizations\* appraised at level 2**

**Higher maturity has been reached among those organizations reporting reappraisals**

**\*Adjusted for number of organizations rating the KPA**



## **Maturity Summary - 4 Organizational Trends (continued)**

**For organizations that began their CMM-based SPI effort in 1992 or later, the median time to move from:**

- **maturity level 1 to 2 is 22 months**
- **maturity level 2 to 3 is 21 months**
- **maturity level 3 to 4 is 25 months**
- **maturity level 4 to 5 is 13 months**



## Terms Used in this Report

- Appraisal** - The appraisal methods used in this report are the Software Process Assessment (SPA) and CMM-Based Appraisal for Internal Process Improvement (CBA IPI). We do request and receive other Software CMM-based appraisals such as Software Capability Evaluations (SCE) and Interim Profiles. As our sampling size of these other methods increase, they will be reported here.
- Company** - Parent of the appraised entity  
A company can be a commercial or non-commercial firm, for-profit or not for-profit business, a research and development unit, a higher education unit, a government agency, or branch of service, etc.
- Organization** – a.k.a. Appraised entity  
The organization unit to which the appraisal results apply. An appraised entity can be the entire company, a selected business unit, units supporting a particular product line or service, etc.
- Offshore** - Appraised entity whose geographic location is not within the United States. The parent of the appraised entity may or may not be based within the United States.



## **Report your Appraisal Results to the SEI**

**The briefing is only possible due to the cooperation of organizations and individuals sending in their appraisal results to the SEI**

**In order to provide this information and service in the future, it will depend on this continued cooperation**

**Please visit:**

**<http://www.sei.cmu.edu/sema/report.html>**

**for forms, information, and instructions on how to report appraisals to the SEI**



## Contact Information

**Please visit:**

**[http://www.sei.cmu.edu/sema/profile\\_about.html](http://www.sei.cmu.edu/sema/profile_about.html)**

**and review the information provided before contacting:**

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