



Carnegie Mellon University
Software Engineering Institute

Process Maturity Profile

Software CMM[®] CBA IPI and SPA Appraisal Results 2002 Year End Update

April 2003

We could not produce this report without the support of the organizations and lead appraisers who reported their appraisal results to the SEISM.

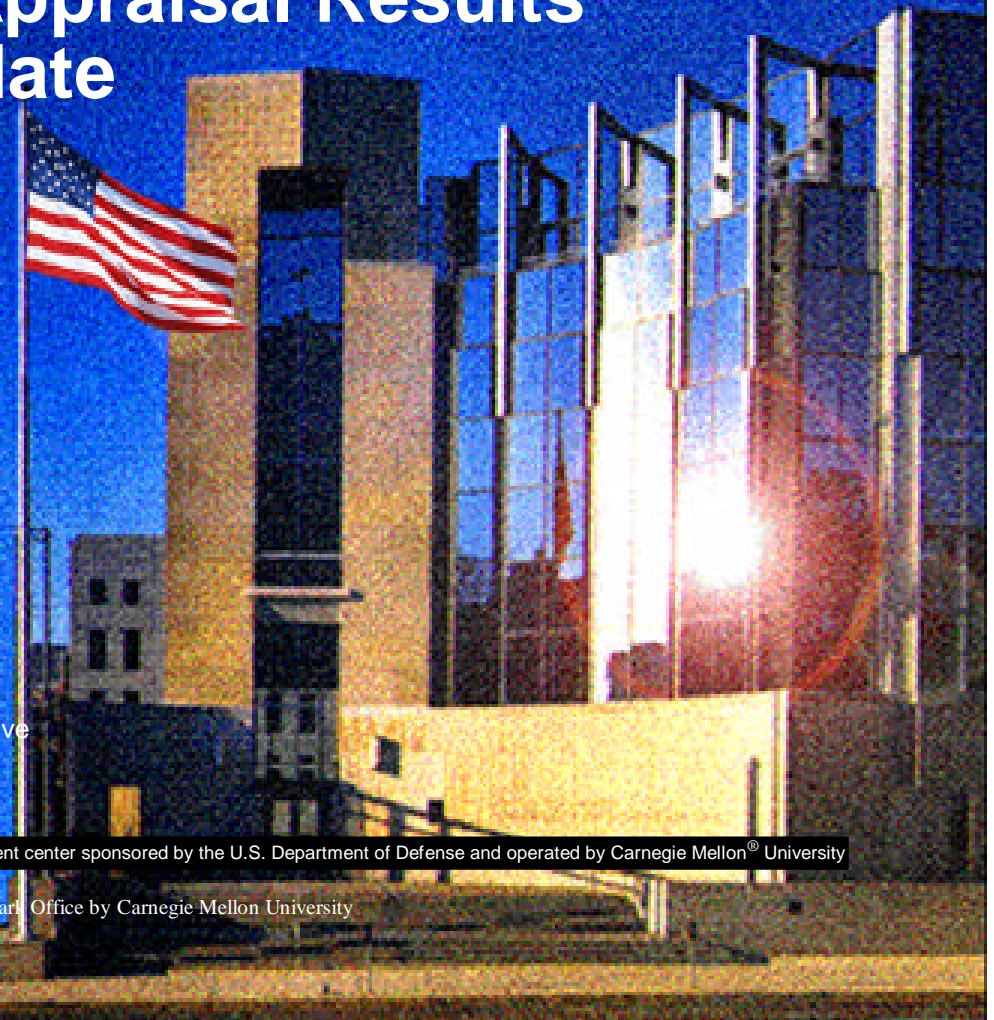
Our many thanks for their continuing cooperation with our data collection and analysis efforts.

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

for additional information or questions you may have about this briefing



Introduction - 2: Data Description

CBA IPIs and SPAs conducted since 1987 through December 2002 and reported to the SEI by January 2003

- **2,616 appraisals**
- **2,132 CBA IPIs**
- **484 SPAs**
- **1,978 organizations**
- **632 participating companies**
- **504 reappraised organizations**
- **10,867 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 1998, 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

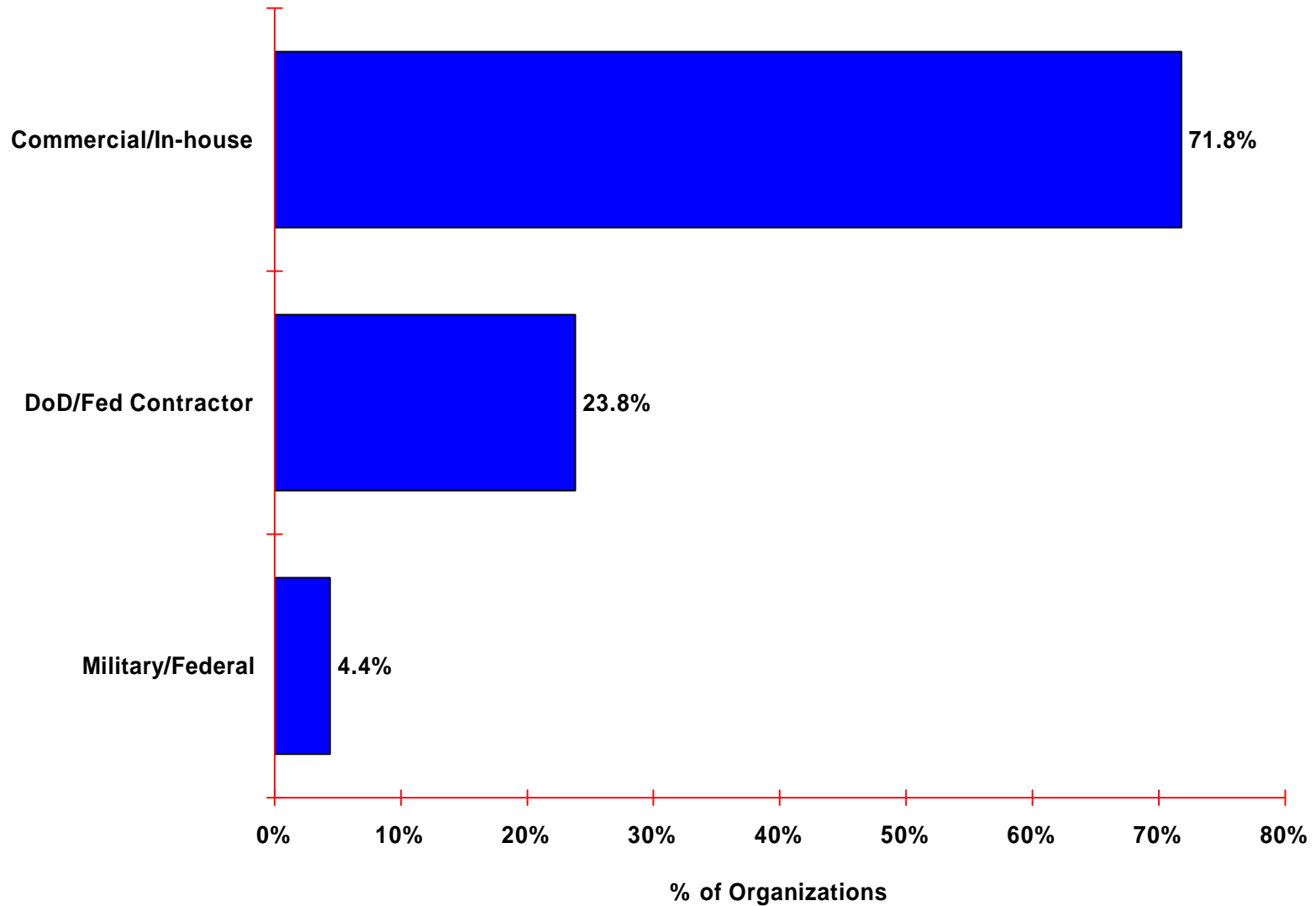
Appraisals conducted from 1998 through December 2002

- **1,345 organizations**
- **508 participating companies**
- **6,765 projects**
- **47.1% offshore organizations**

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



Reporting Organization Types

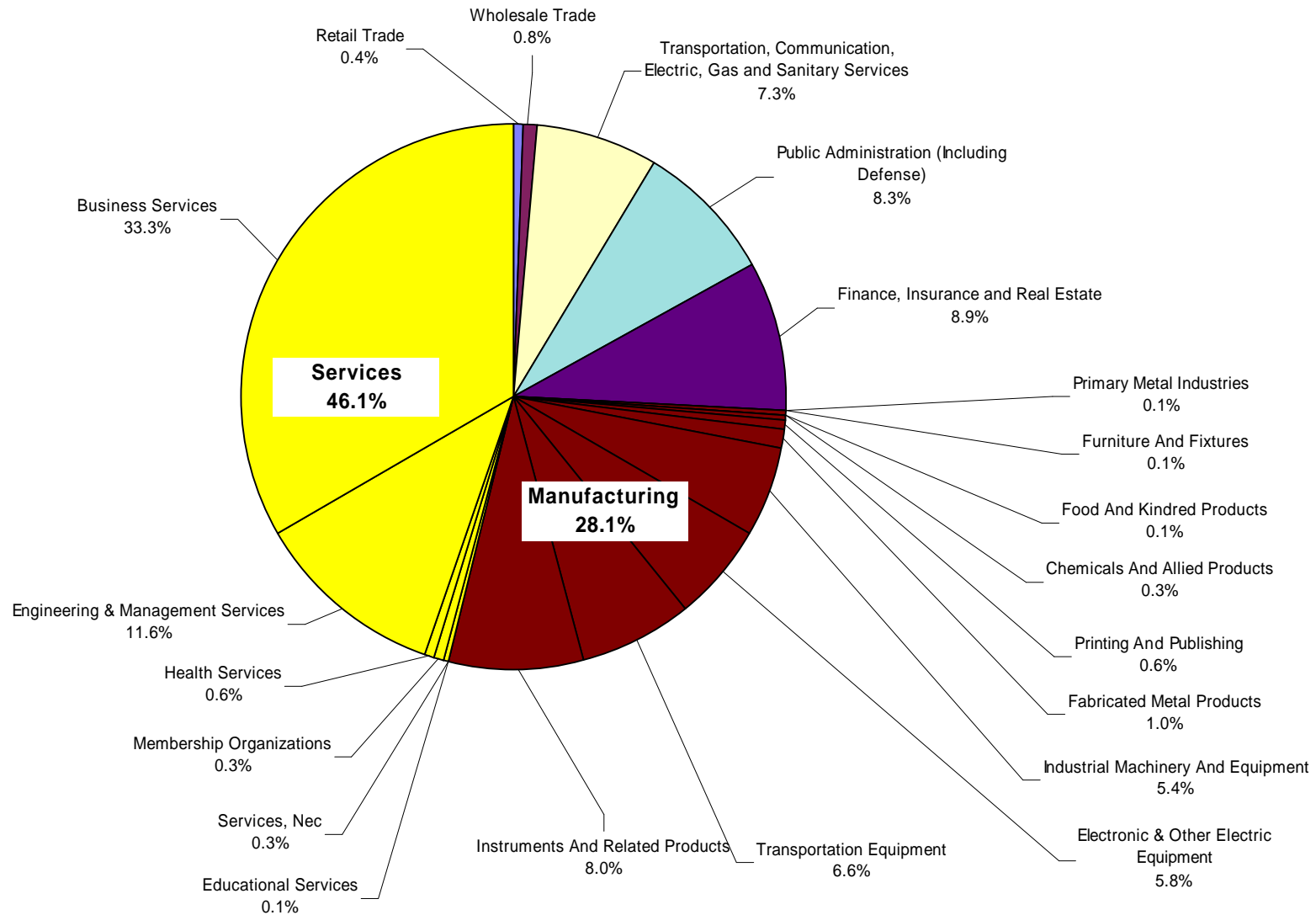


Based on 1,345 organizations



Types of Organizations

Based on Primary Standard Industrial Classification (SIC) Code

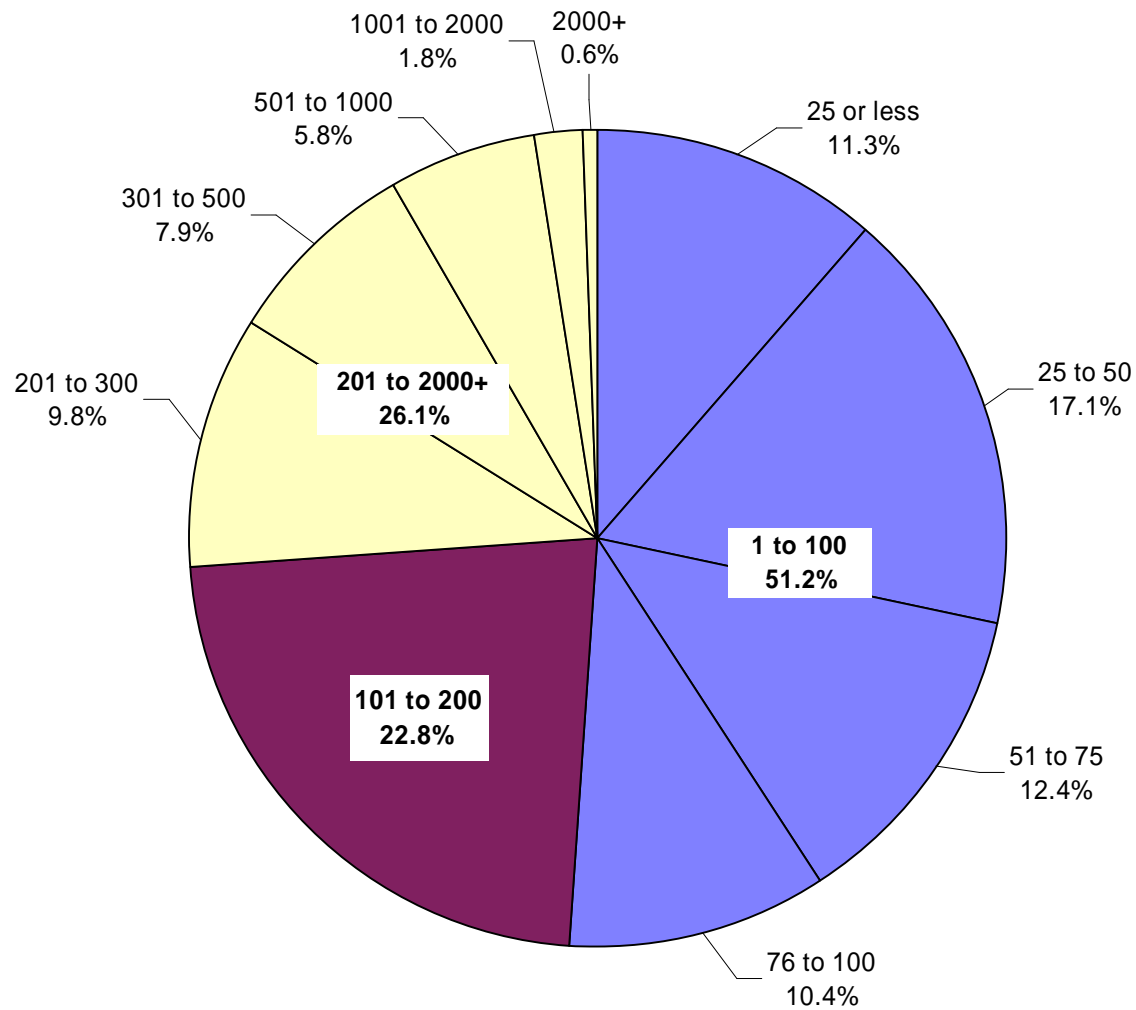


Based on 709 organizations reporting SIC code. For more information visit: <http://www.osha.gov/oshstats/sicser.html>



Organization Size

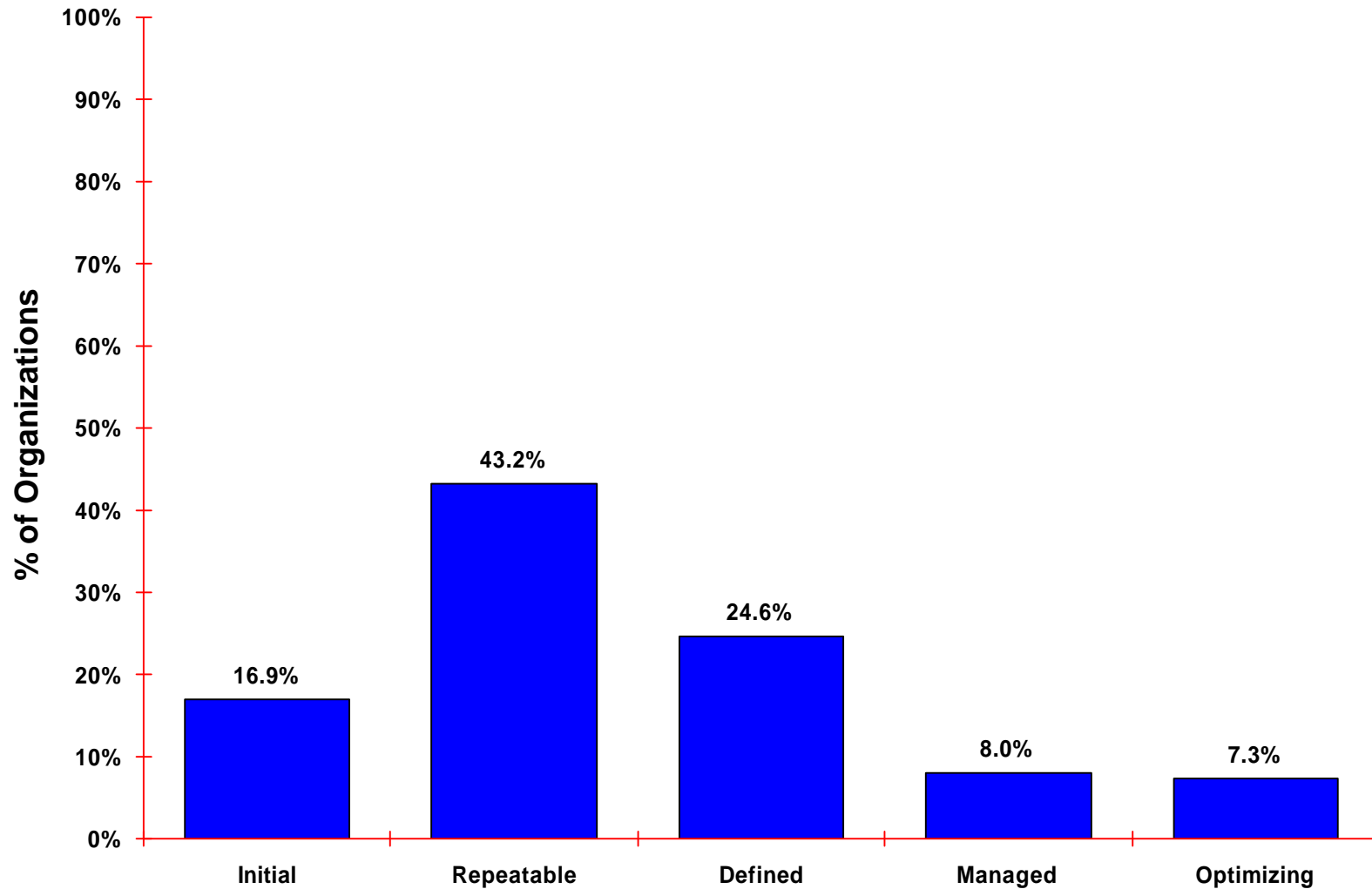
Based on the total number of employees within the area of the organization that was appraised



Based on 1,309 organizations reporting size data



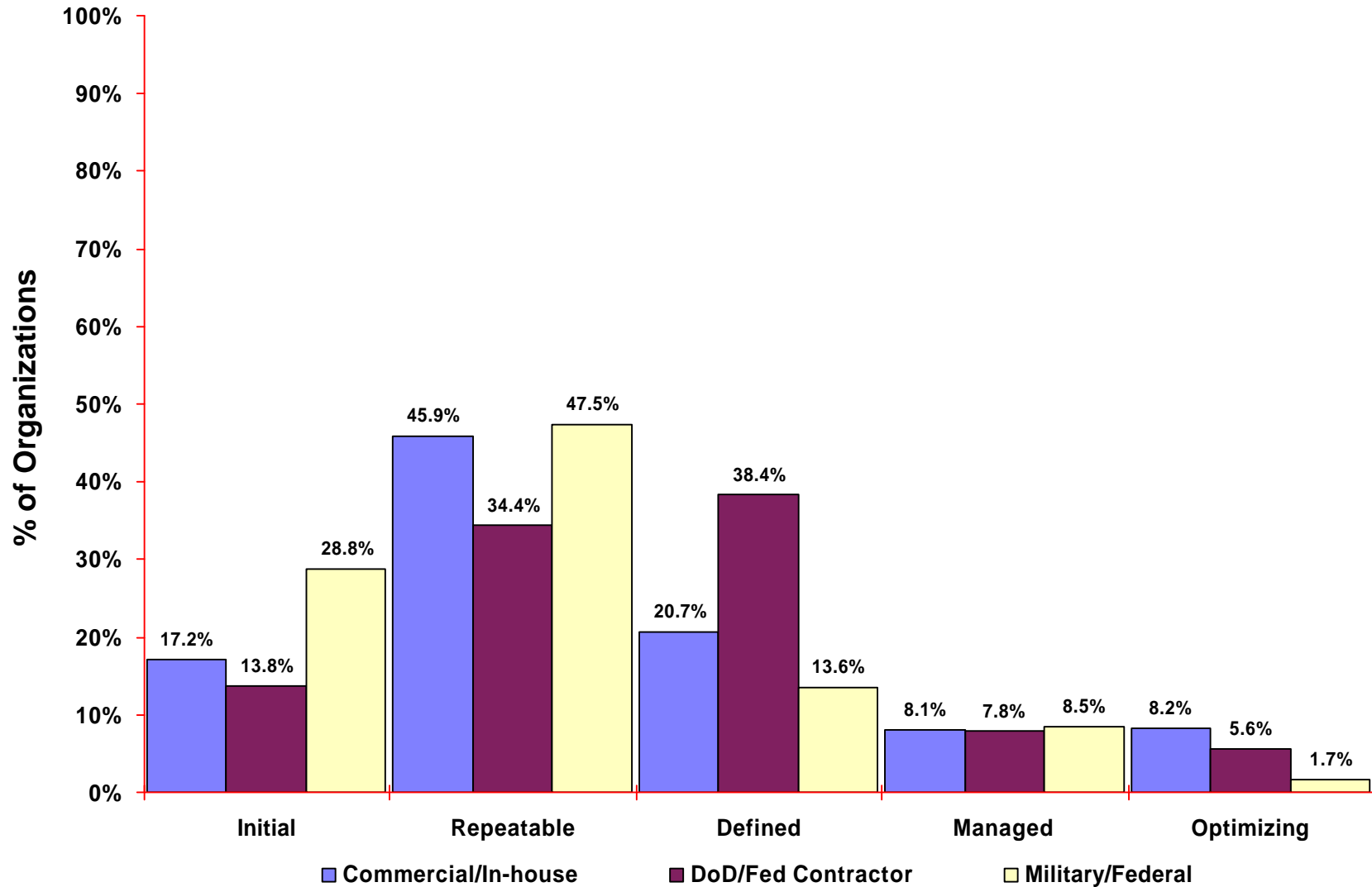
Organization Maturity Profile



Based on most recent appraisal, since 1998, of 1,345 organizations



Maturity Profile by Organization Type

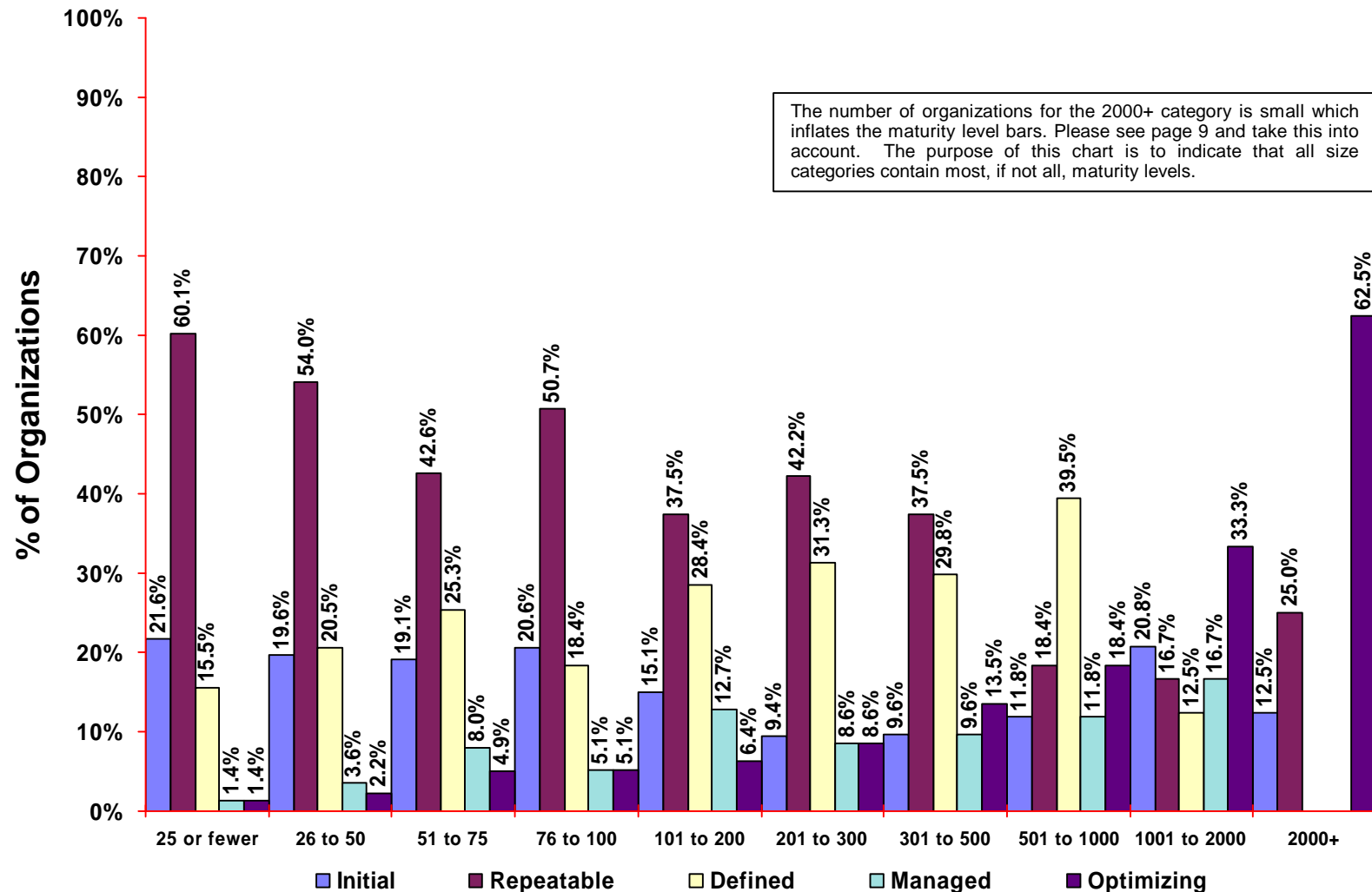


Based on most recent appraisal, since 1998, of 1,345 organizations



Maturity Profile by Organization Size

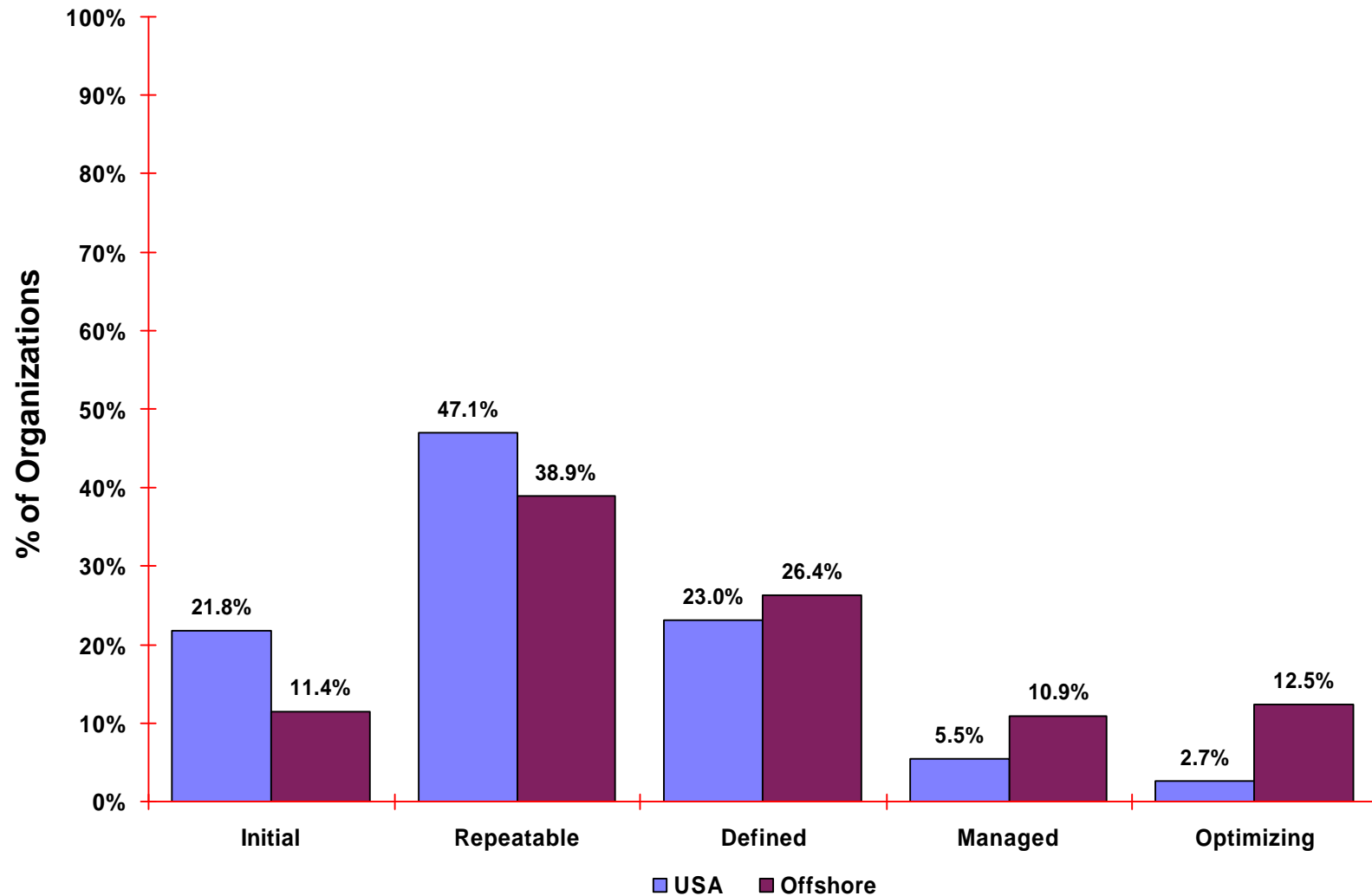
Based on the total number of employees within the area of the organization that was appraised



Based on 1,309 organizations reporting size data



USA and Offshore Organization Maturity Profiles



Based on 712 U.S. organizations and 633 offshore organizations



Community Trends

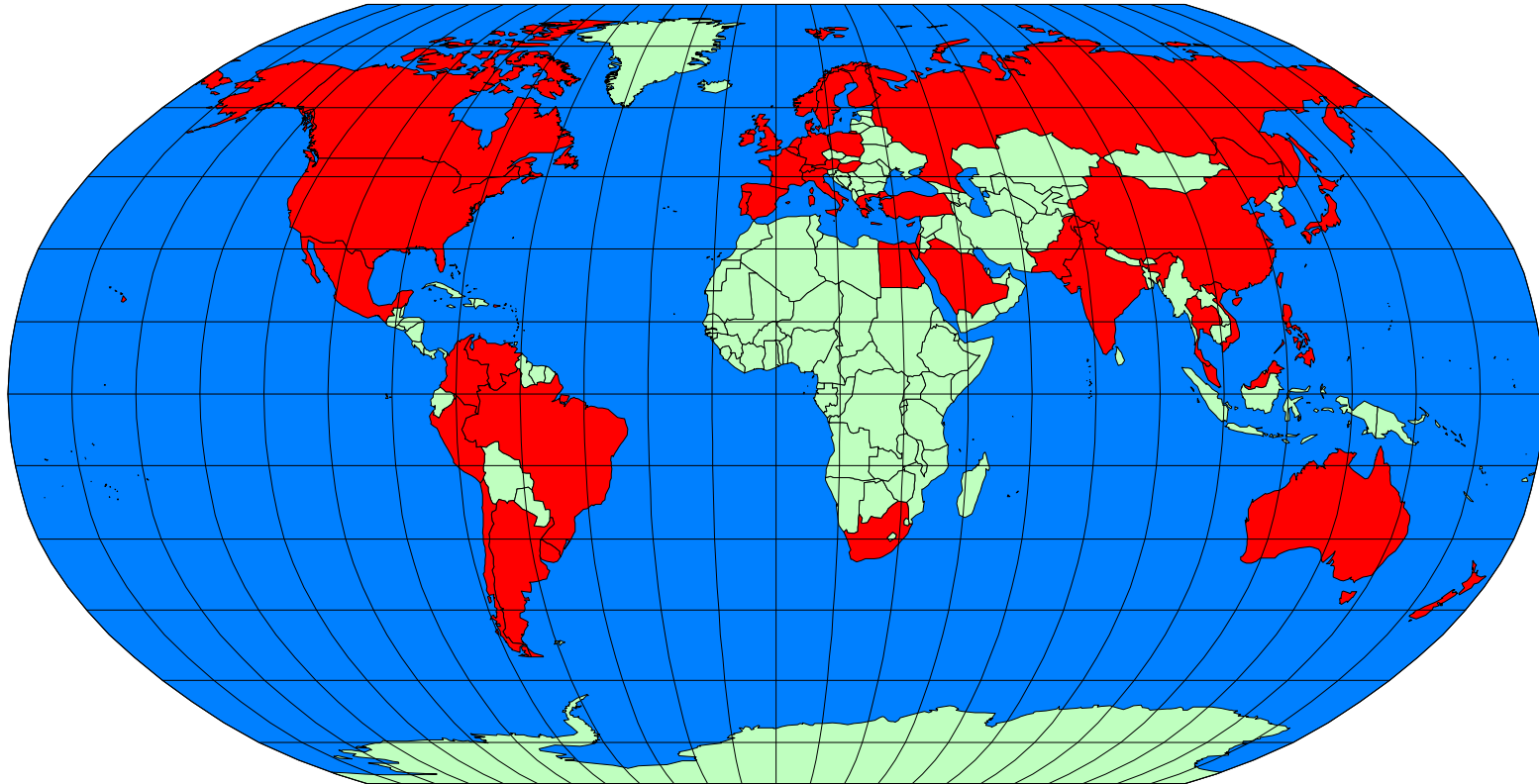
Appraisals conducted from 1987 through December 2002

- 2,616 appraisals
- 1,978 organizations
- 632 participating companies
- 504 reappraised organizations
- 10,867 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	Vietnam					



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

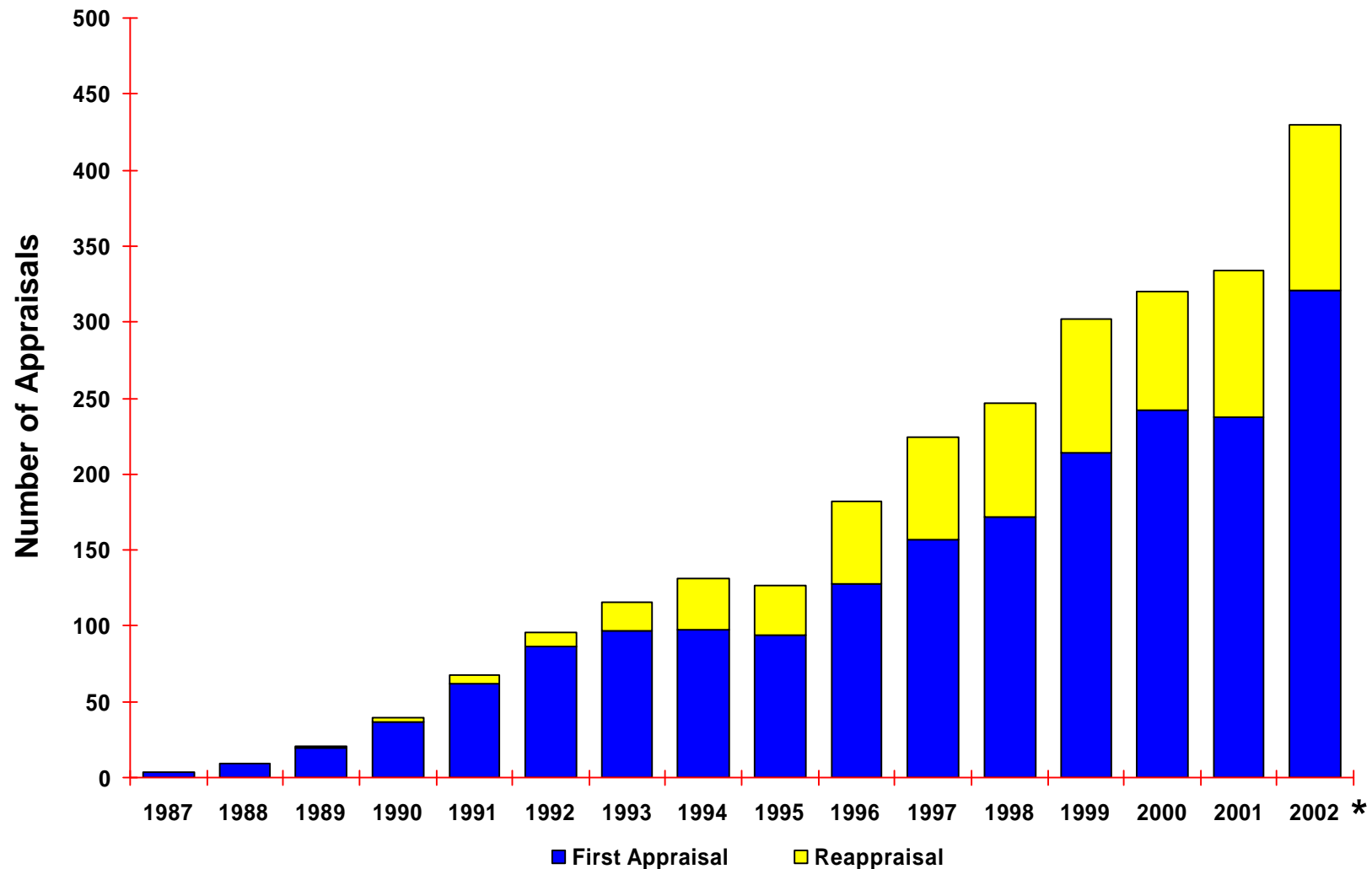
Country	Number of Appraisals	Maturity Level 1 Reported	Maturity Level 2 Reported	Maturity Level 3 Reported	Maturity Level 4 Reported	Maturity Level 5 Reported	Country	Number of Appraisals	Maturity Level 1 Reported	Maturity Level 2 Reported	Maturity Level 3 Reported	Maturity Level 4 Reported	Maturity Level 5 Reported
Argentina	10 or fewer						Malaysia	10 or fewer					
Australia	27	Yes	Yes	Yes	No	No	Mexico	13	Yes	Yes	Yes	Yes	No
Austria	10 or fewer						Netherlands	13	Yes	Yes	Yes	No	No
Barbados	10 or fewer						New Zealand	10 or fewer					
Belgium	10 or fewer						Norway	10 or fewer					
Brazil	16	Yes	Yes	Yes	No	No	Pakistan	10 or fewer					
Canada	59	Yes	Yes	Yes	No	Yes	Peru	10 or fewer					
Chile	10 or fewer						Philippines	10 or fewer					
China	73	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	110	Yes	Yes	Yes	Yes	No	South Africa	10 or fewer					
Germany	30	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	238	Yes	Yes	Yes	Yes	Yes	Thailand	10 or fewer					
Ireland	10 or fewer						Turkey	10 or fewer					
Israel	28	Yes	Yes	Yes	No	No	United Kingdom	119	Yes	Yes	Yes	No	No
Italy	26	Yes	Yes	Yes	No	No	United States	1671	Yes	Yes	Yes	Yes	Yes
Japan	77	Yes	Yes	Yes	Yes	Yes	Uruguay	10 or fewer					
Korea, Republic of	22	Yes	Yes	Yes	Yes	No	Venezuela	10 or fewer					
							Vietnam	10 or fewer					

Please visit: http://www.sei.cmu.edu/sema/profile_FAR.html

and review the information provided about this slide before contacting the SEI directly for additional information



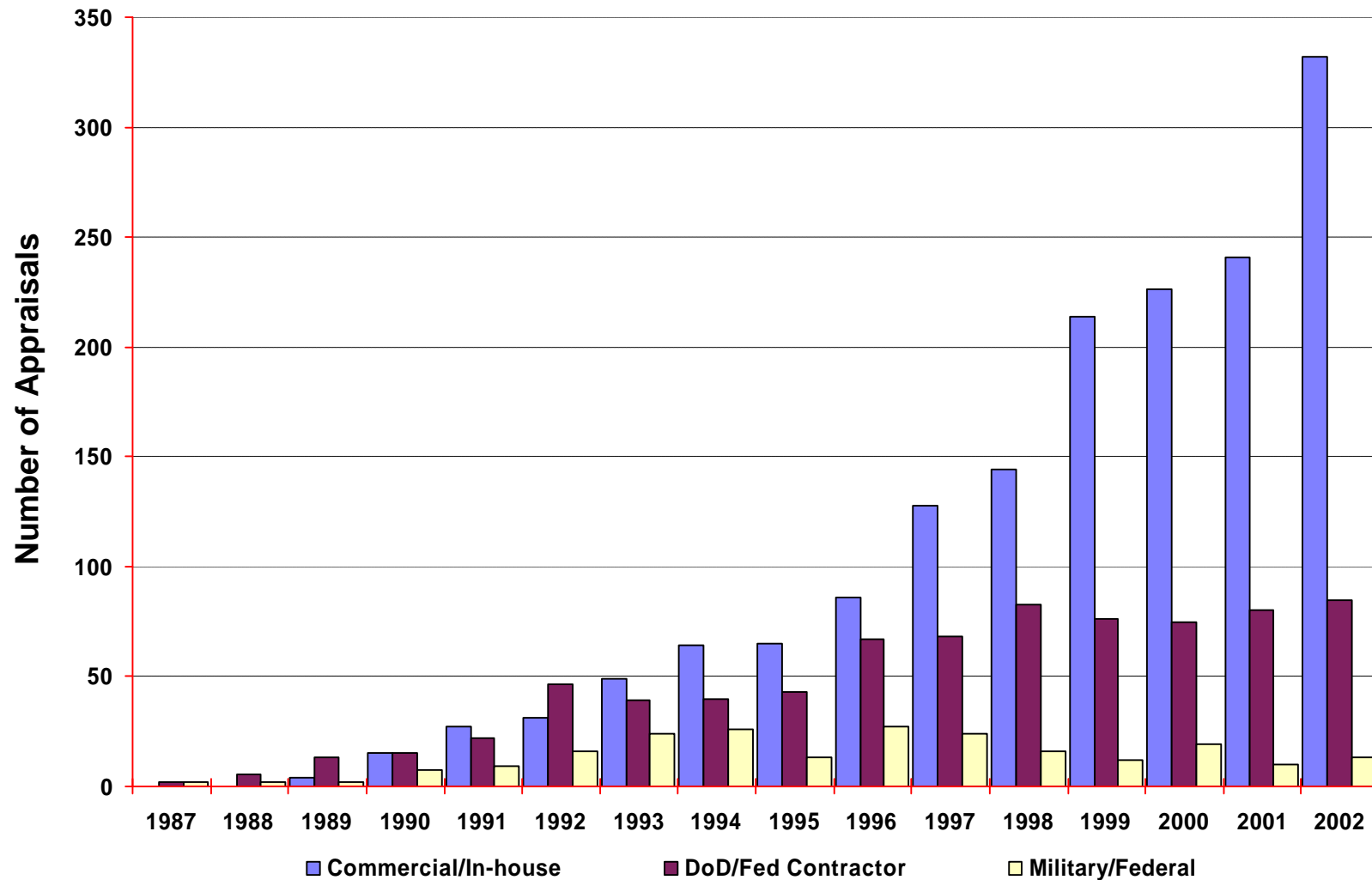
Number of Appraisals Reported to the SEI by Year



Based on 2,616 appraisals conducted through Dec 2002 and reported to the SEI by Jan 2003 *



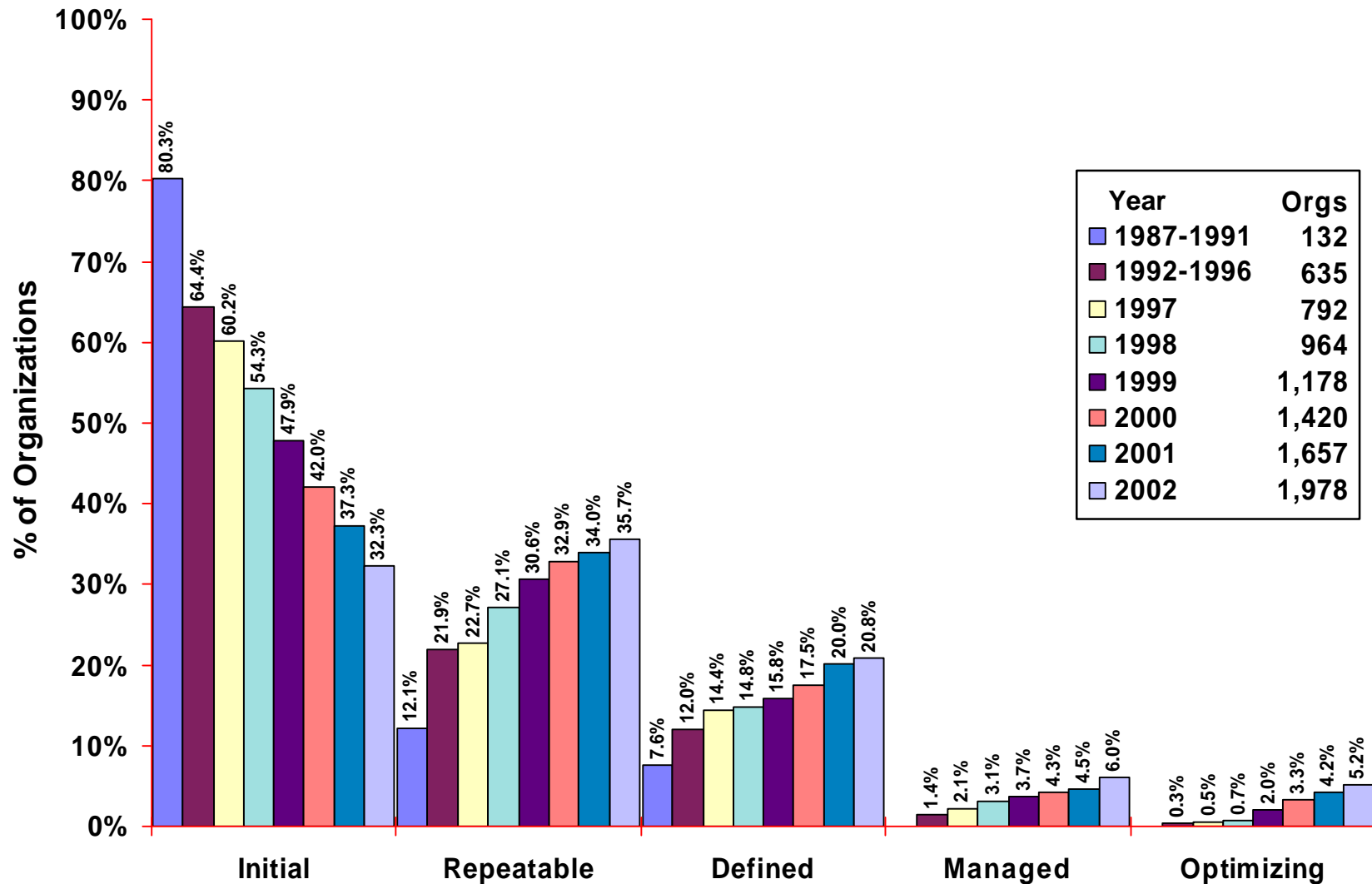
Number of Appraisals Reported to the SEI by Organization Type and Year



Based on 2,607 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 December 2002

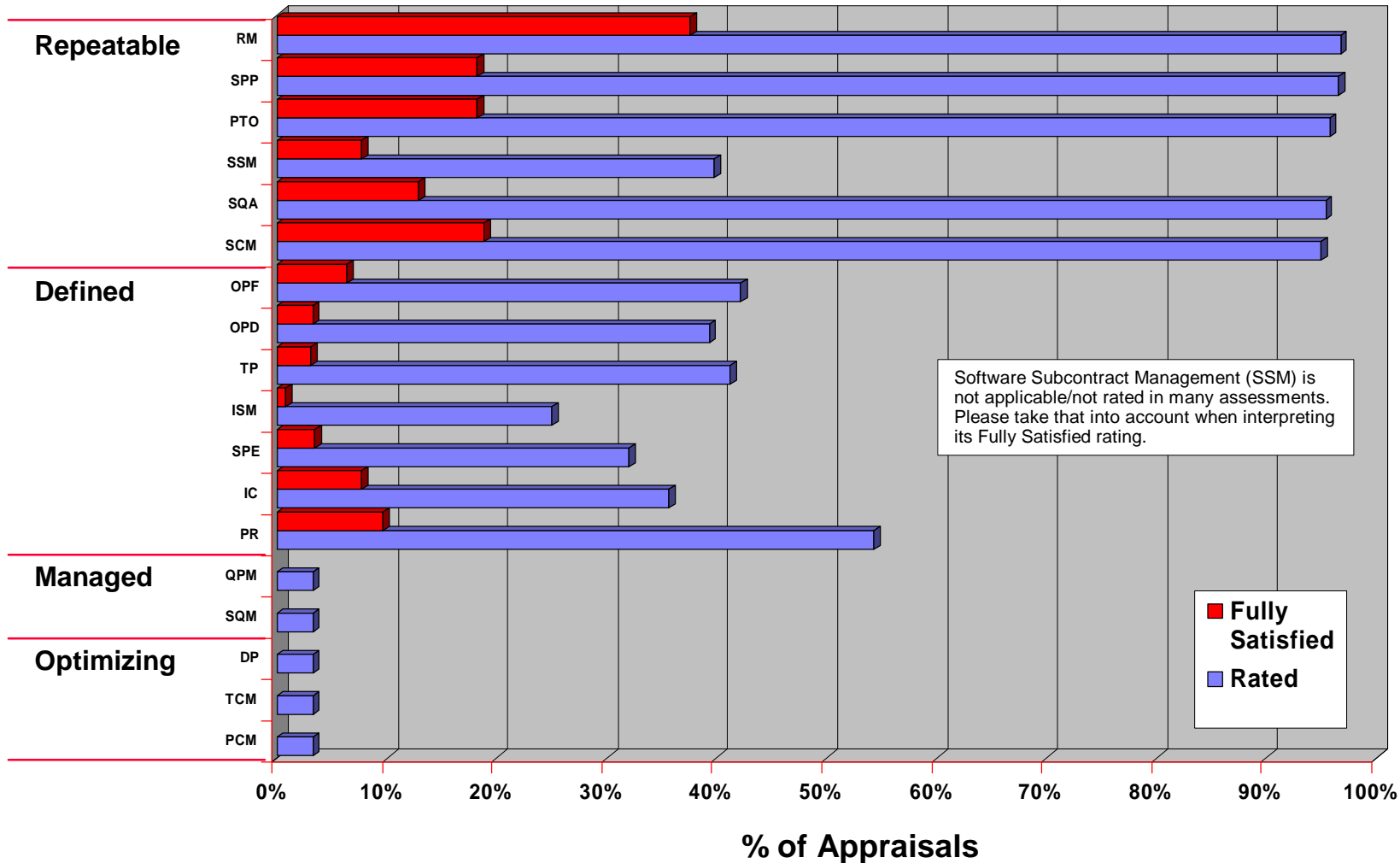
- **1,377 Key Process Area (KPA) profiles**
 - satisfaction of KPAs by maturity level for organizations appraised at levels 1 and 2
- **504 reappraised organizations**
 - accounting for 1,152 appraisals
 - although some organizations conducted multiple reappraisals, only the first and latest appraisals 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 Level 1

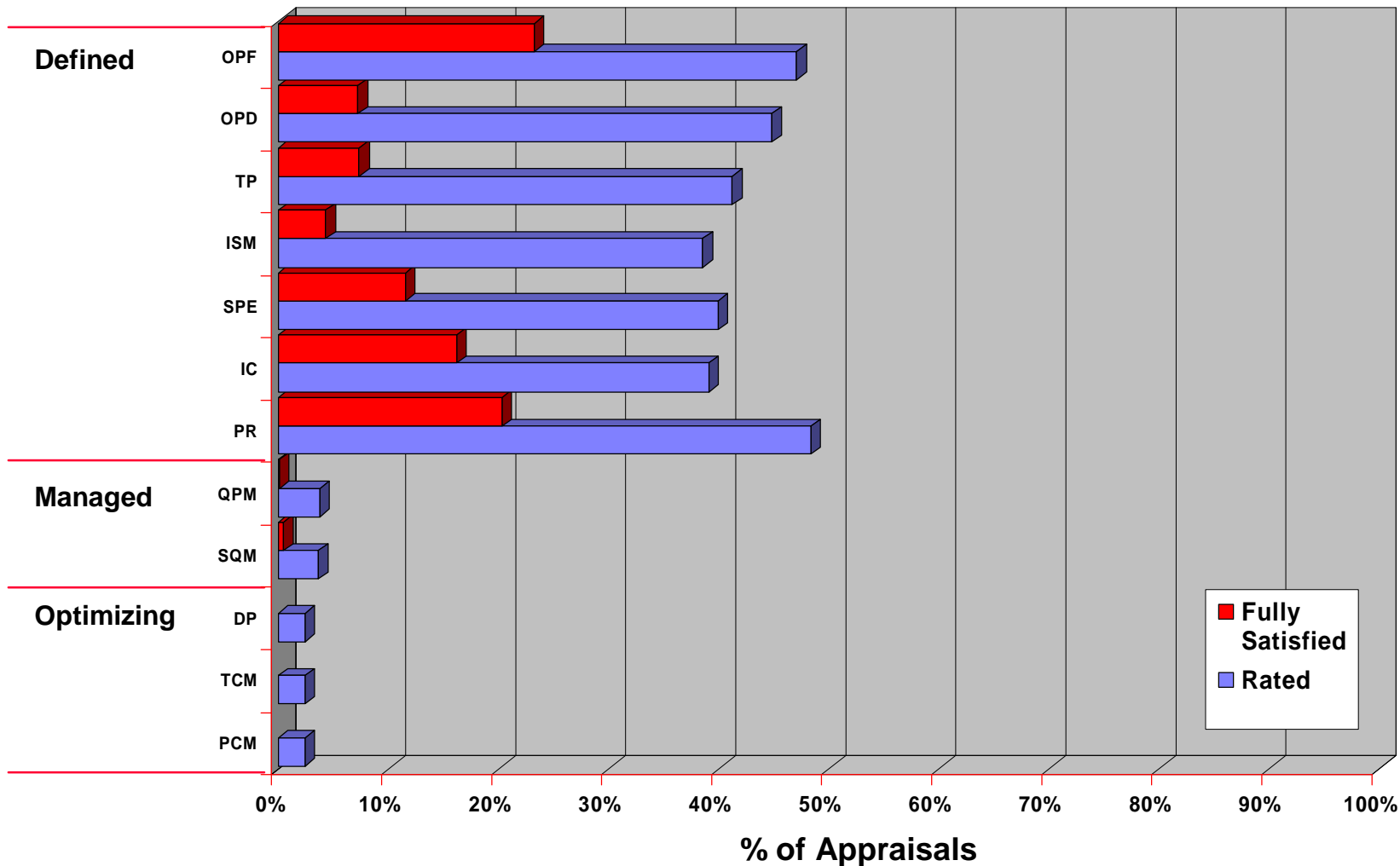


Based on 521 CBA IPI appraisals



Key Process Area Profiles - 2

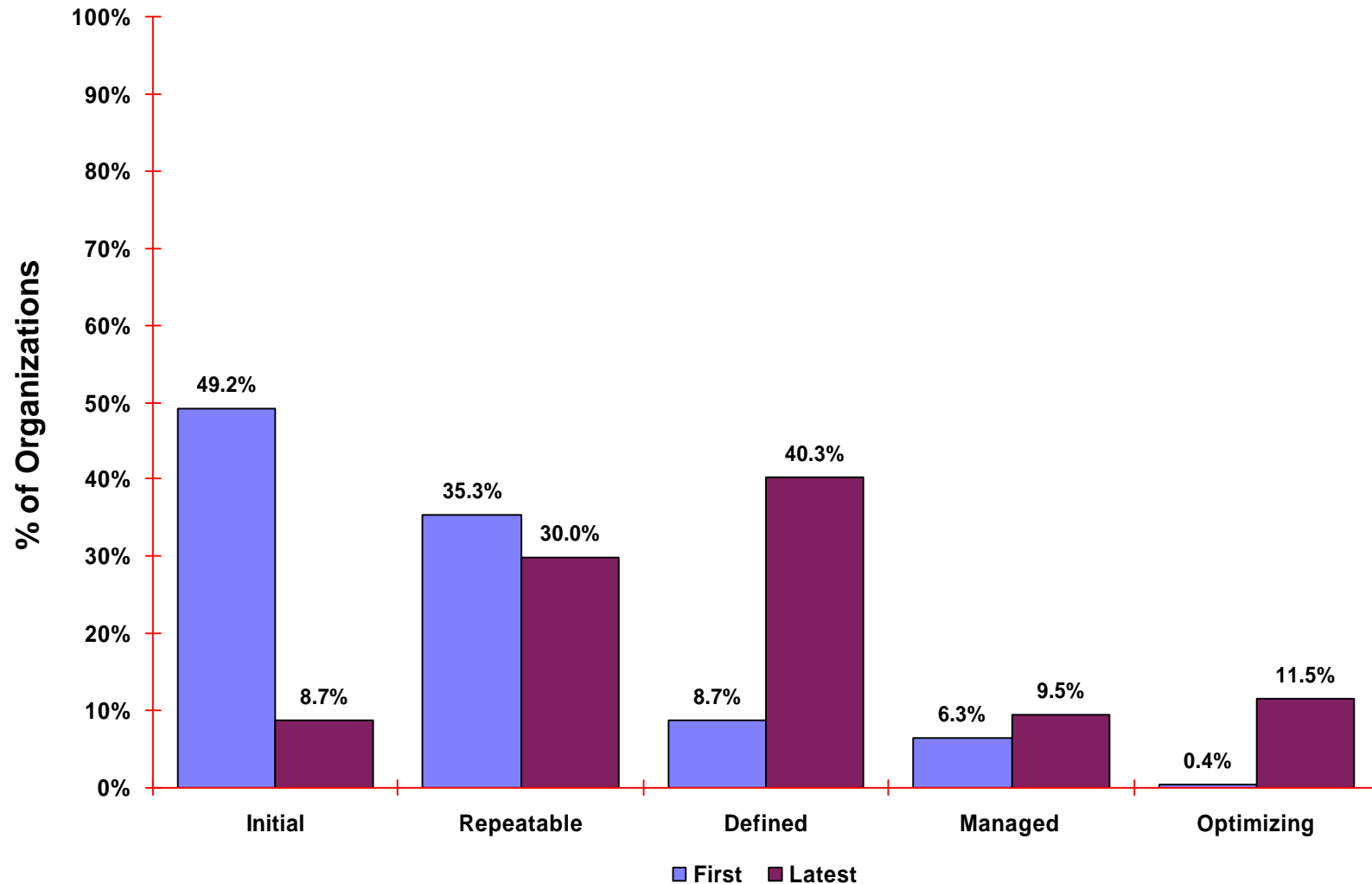
Organizations Appraised at Level 2



Based on 856 CBA IPI appraisals



Maturity Level of First and Latest Appraisal

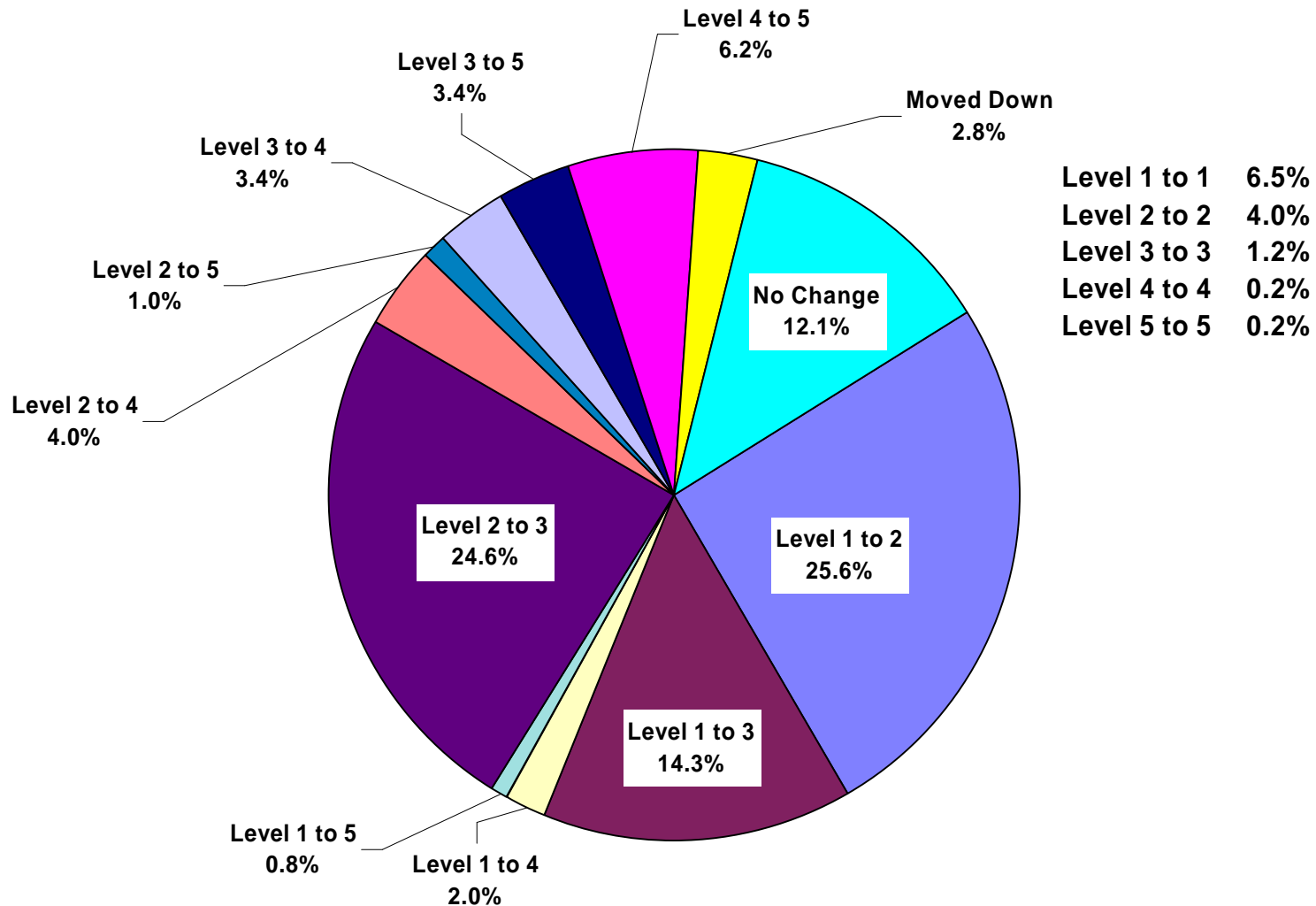


Based on 504 reappraised organizations using their first and latest appraisal



Reappraisals

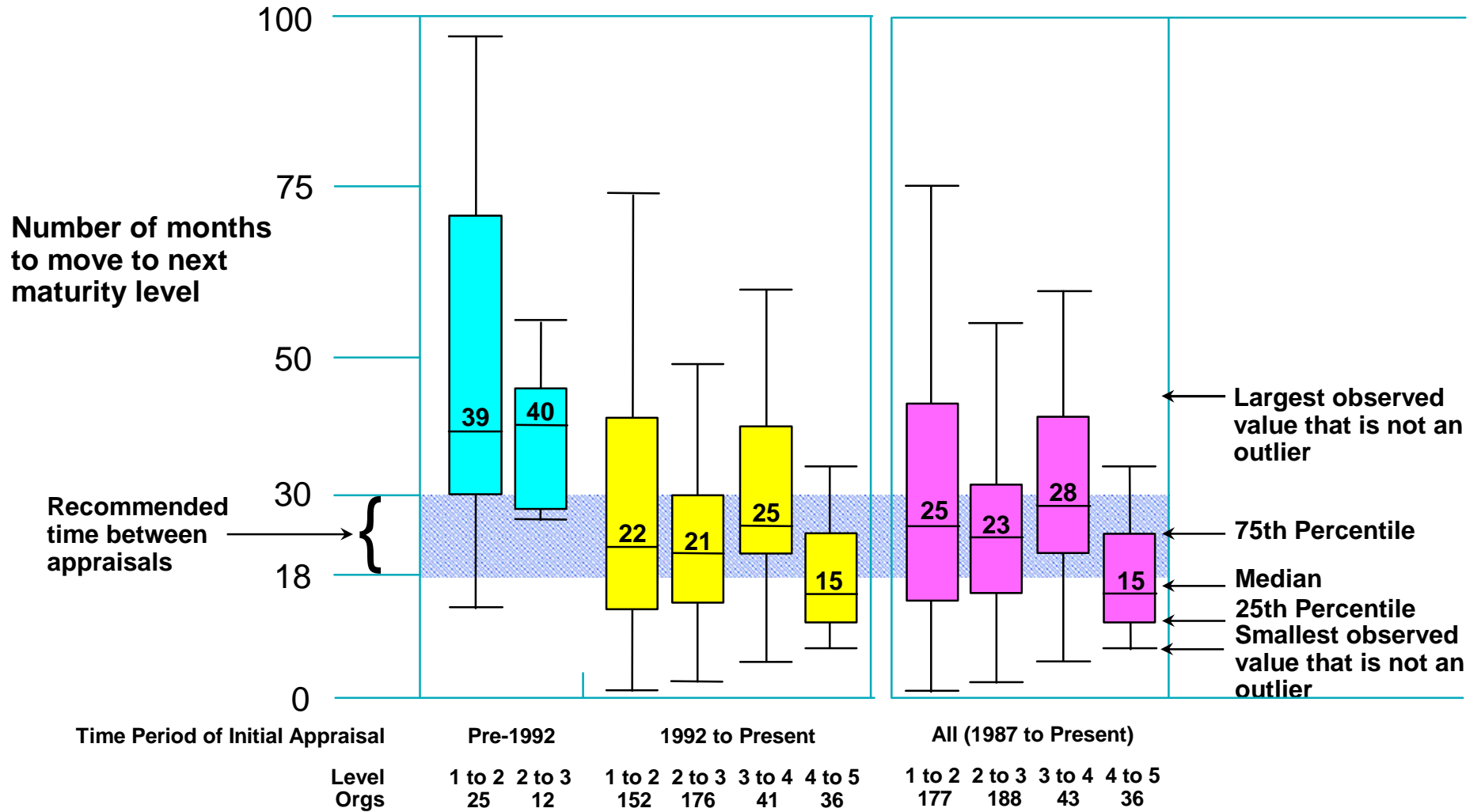
Change in Maturity Level



Based on 504 reappraised organizations using their first and latest appraisal



Time to Move Up





Maturity Summary - 1

Current Status

Increase in appraisals reported to the SEI as compared to prior releases of this briefing

A greater portion of this increase were from offshore organizations

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



Maturity Summary - 2 Community Trends

Overall community profile continues to shift toward higher maturity

Trend toward higher maturity profile for offshore organizations compared to U.S. organizations continues



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 15 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

and review the information provided before contacting:

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