



Carnegie Mellon  
Software Engineering Institute

# Process Maturity Profile

## Software CMM® 2005 End-Year Update

March 2006

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>.

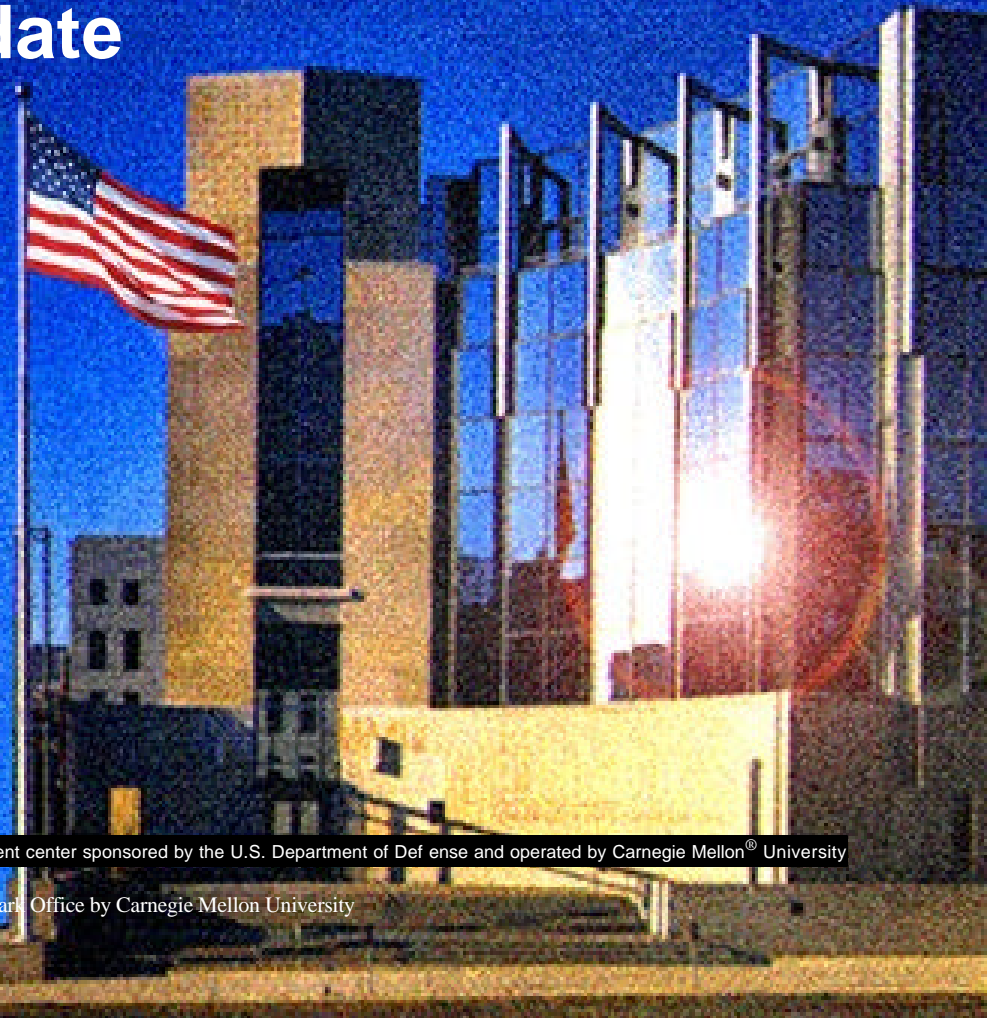
Our many thanks for their continuing cooperation with our data collection and analysis efforts.

CMMI Appraisal Program

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# Thanks for Reporting 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**

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

**The SW-CMM appraisals sunset is Dec. 2005. There will be no more update available in the future.**



# Outline

## Introduction

## Current Status

## Community Trends

## Organizational Trends

## Summary

This briefing is based solely on the appraisals reported to the SEI. It cannot be used as a source for an exact indicator of all organizations in the world using SEI models or appraisal methods nor can it be used for certification or verification purposes.

The SEI does not certify organizations. The SEI only licenses SEI partners and SEI authorized lead assessors to conduct appraisals. Neither the SEI nor any other organization is a “certifying authority” of the results from an appraisal. Therefore requests to the SEI to provide information to be used for this purpose can not be fulfilled. Information provided by the SEI, such as this briefing, is to demonstrate use of its products and services only.

Organizations performing source selection or verification should consider performing an evaluation appraisal. For more information on appraisal methods and for a directory of authorized lead appraisers who can perform them, visit:  
<http://www.sei.cmu.edu/appraisal-program/>



# Introduction - 1: Purpose and Source

Characterize the process maturity of the software community

This briefing uses information from appraisals using the SW-CMM in:

- **CMM<sup>®</sup>-Based Appraisals for Internal Process Improvement (CBA IPIs) and**
- **Software Process Assessments (SPAs) and**
- **Standard CMMI<sup>®</sup> Appraisal Method for Process Improvement (SCAMPI<sup>SM</sup>), v1.1**

Please visit:

<http://www.sei.cmu.edu/appraisal-program/profile/about.html>

for additional information or to answer questions you may have about this briefing



# Introduction - 2: Briefing Contents

This briefing includes three primary sections:

## 1. Current Status

- Snapshot of the software community based on the most recent appraisal, since 2001, 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 based on change in maturity level and time between appraisals



# Section 1: Current Status

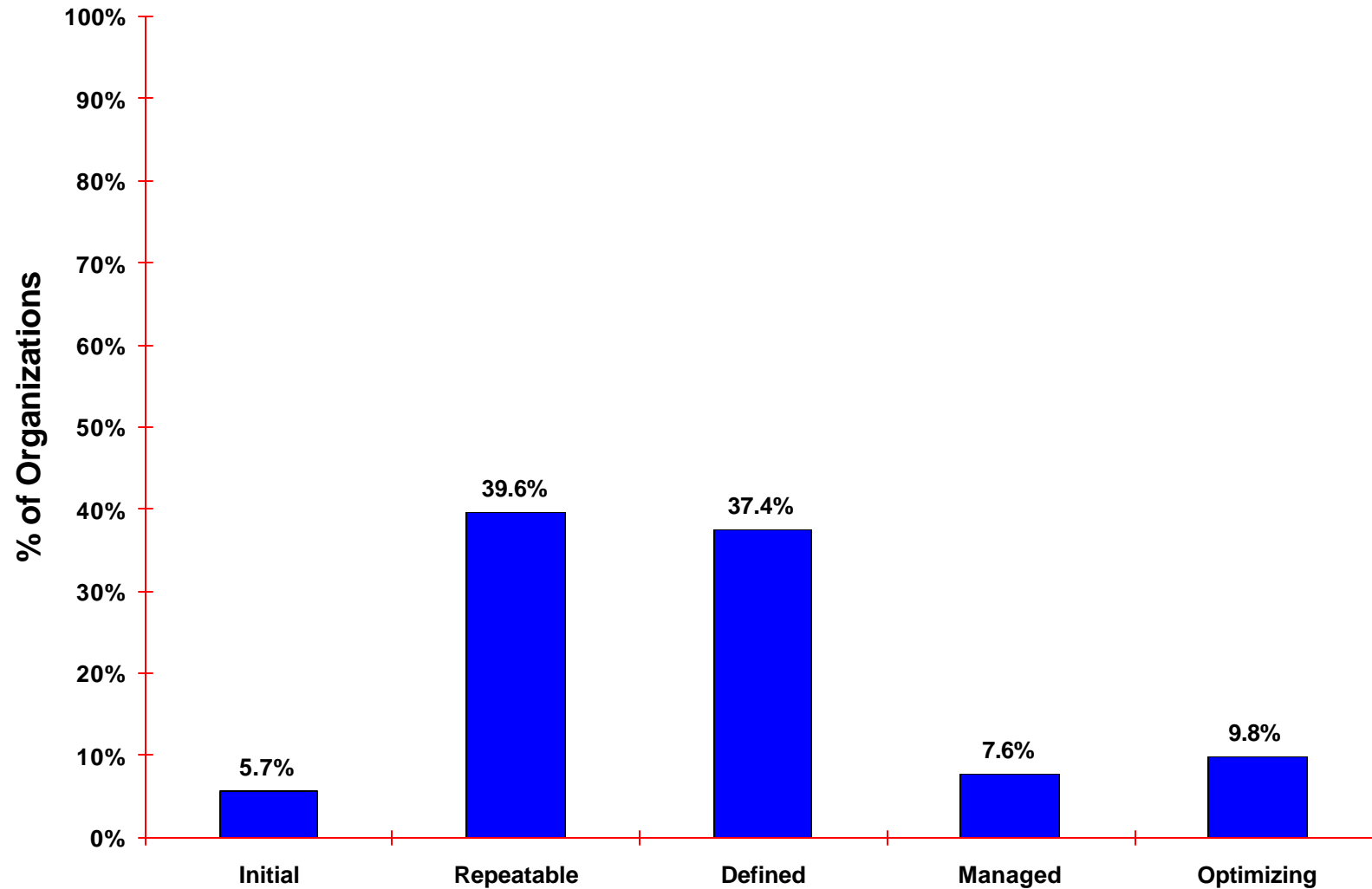
**Appraisals conducted from 2001 through December 2005  
and reported to the SEI**

- **1,804 organizations**
- **996 participating companies**
- **8,897 projects**
- **66.6% Non-USA organizations**

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



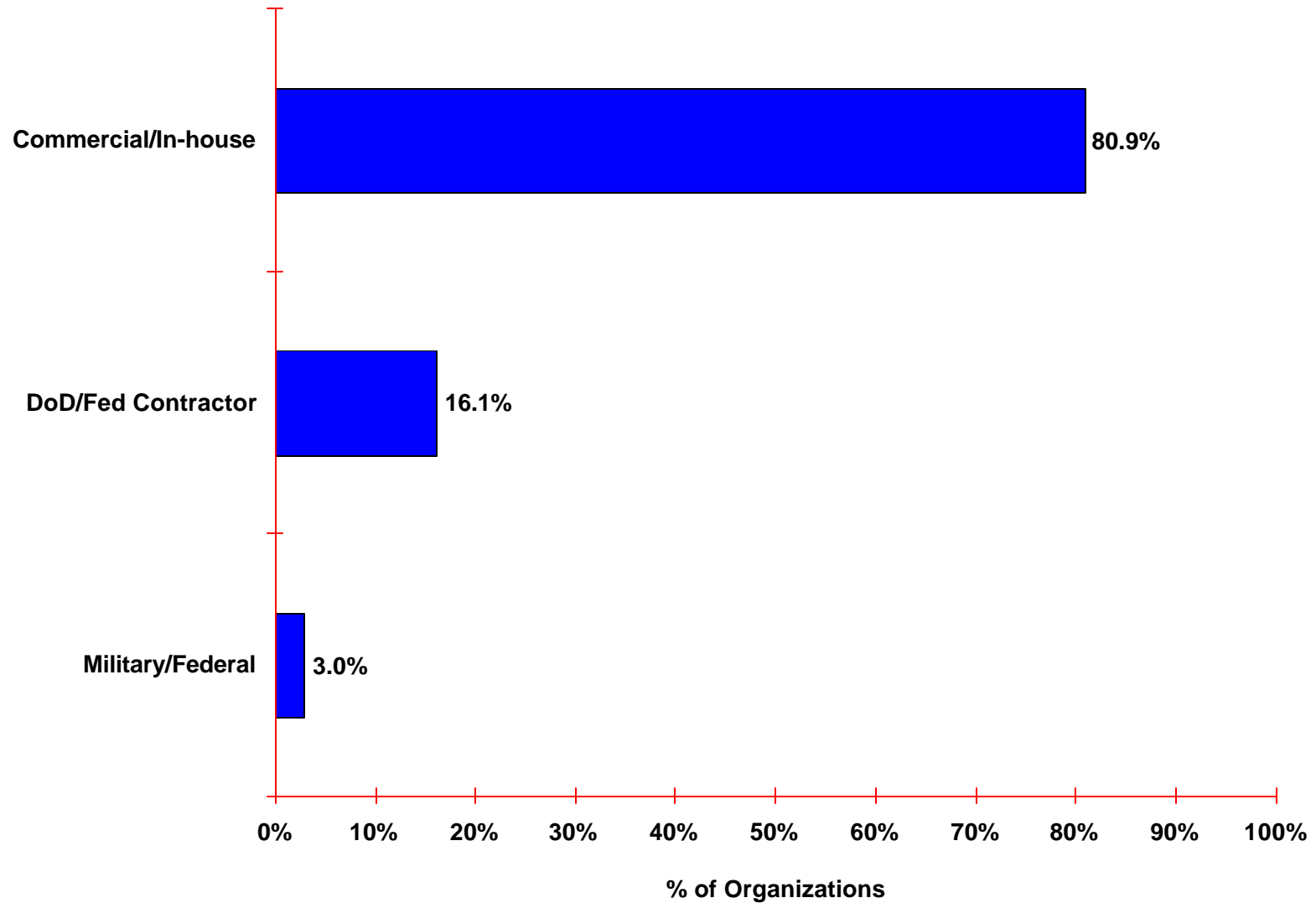
# Maturity Profile by All Reporting Organizations



Based on most recent appraisal, since 2001, of 1,804 organizations reporting a maturity level rating



# Reporting Organization Categories

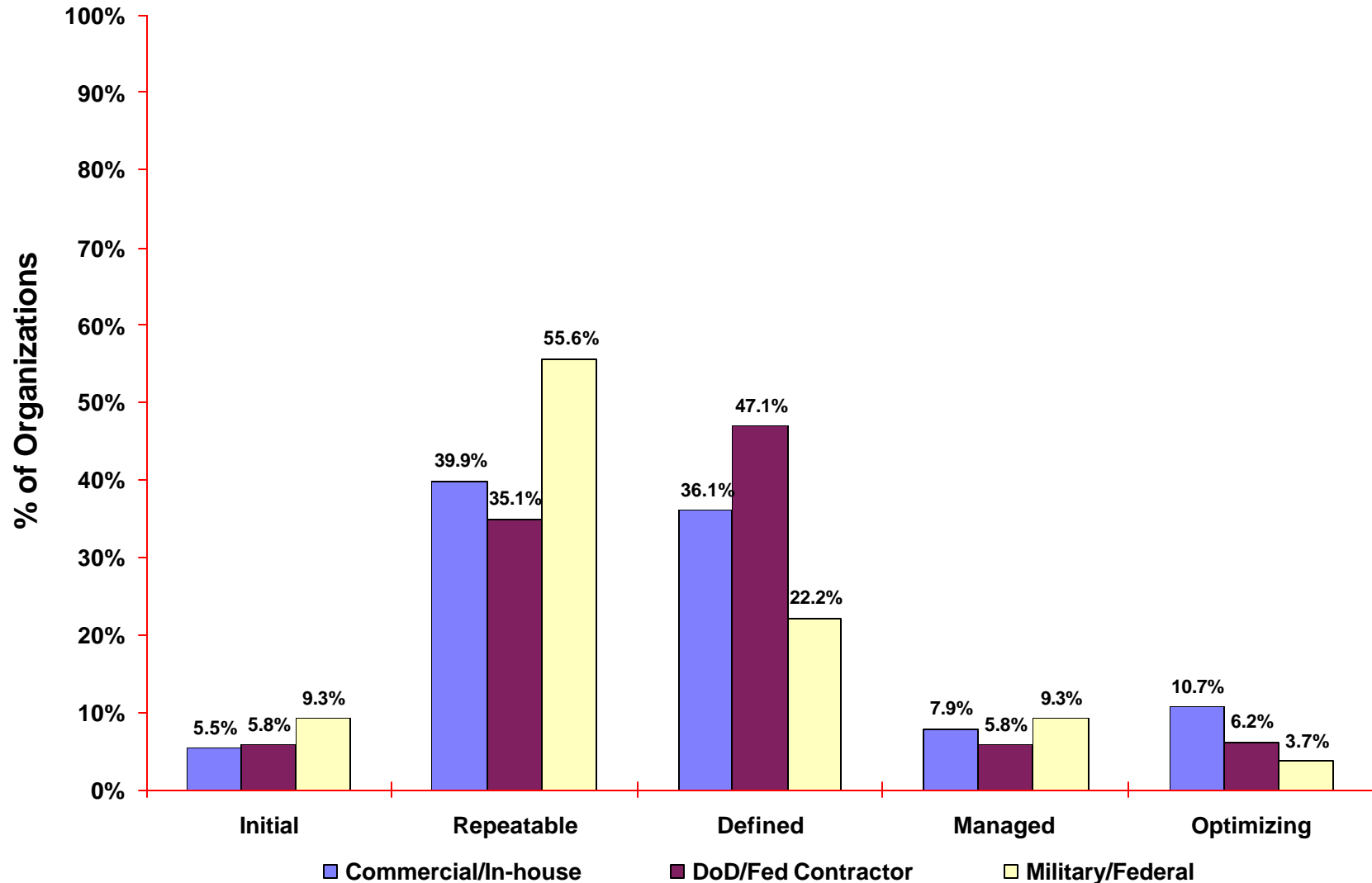


Based on **1,804** organizations reporting organization categories





# Maturity Profile by Reporting Organization Categories

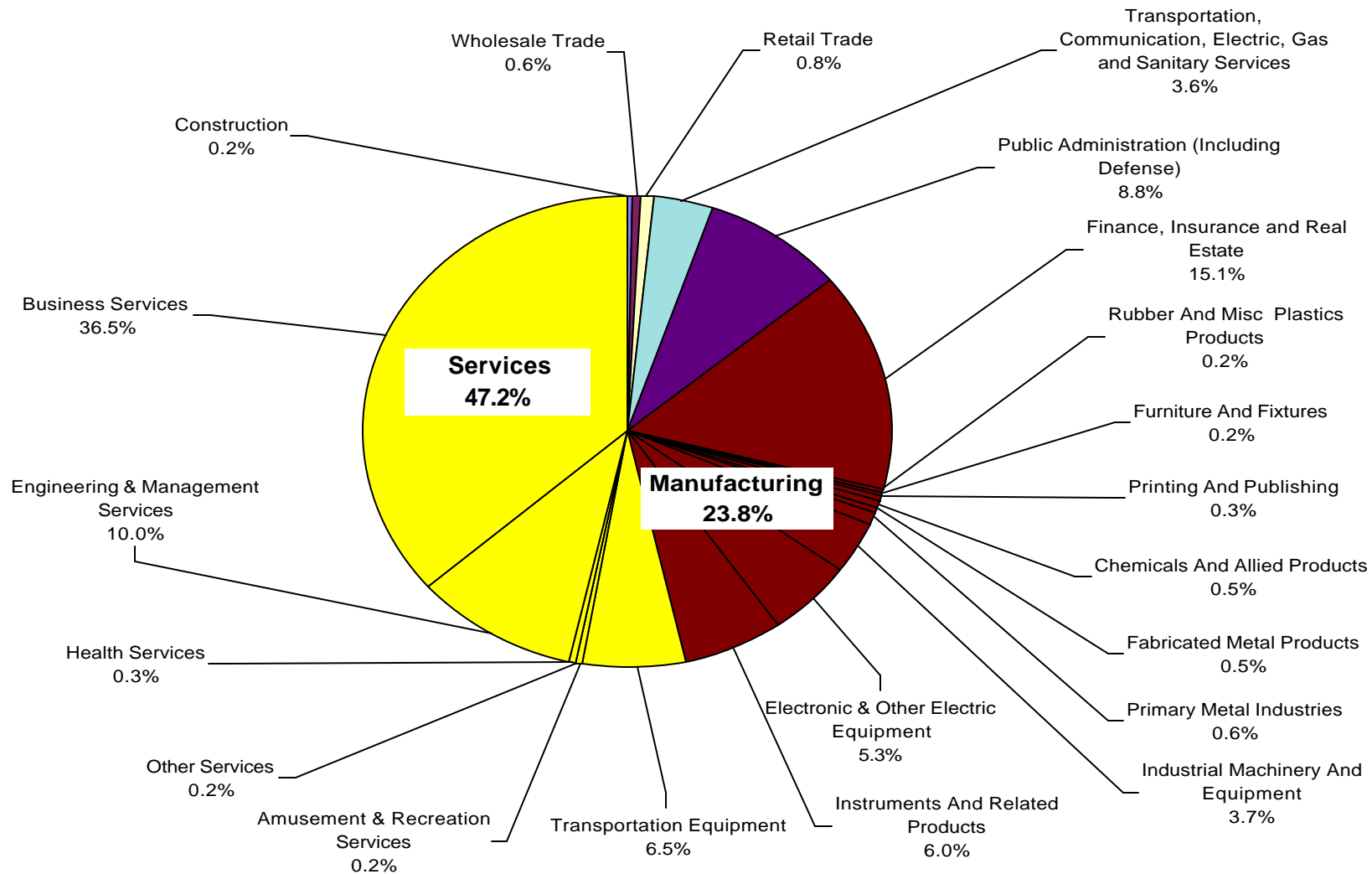


Based on most recent appraisal, since **2001**, of **1,804** organizations reporting categories and a maturity level rating



# Organization Type

Based on Primary Standard Industrial Classification (SIC) Code

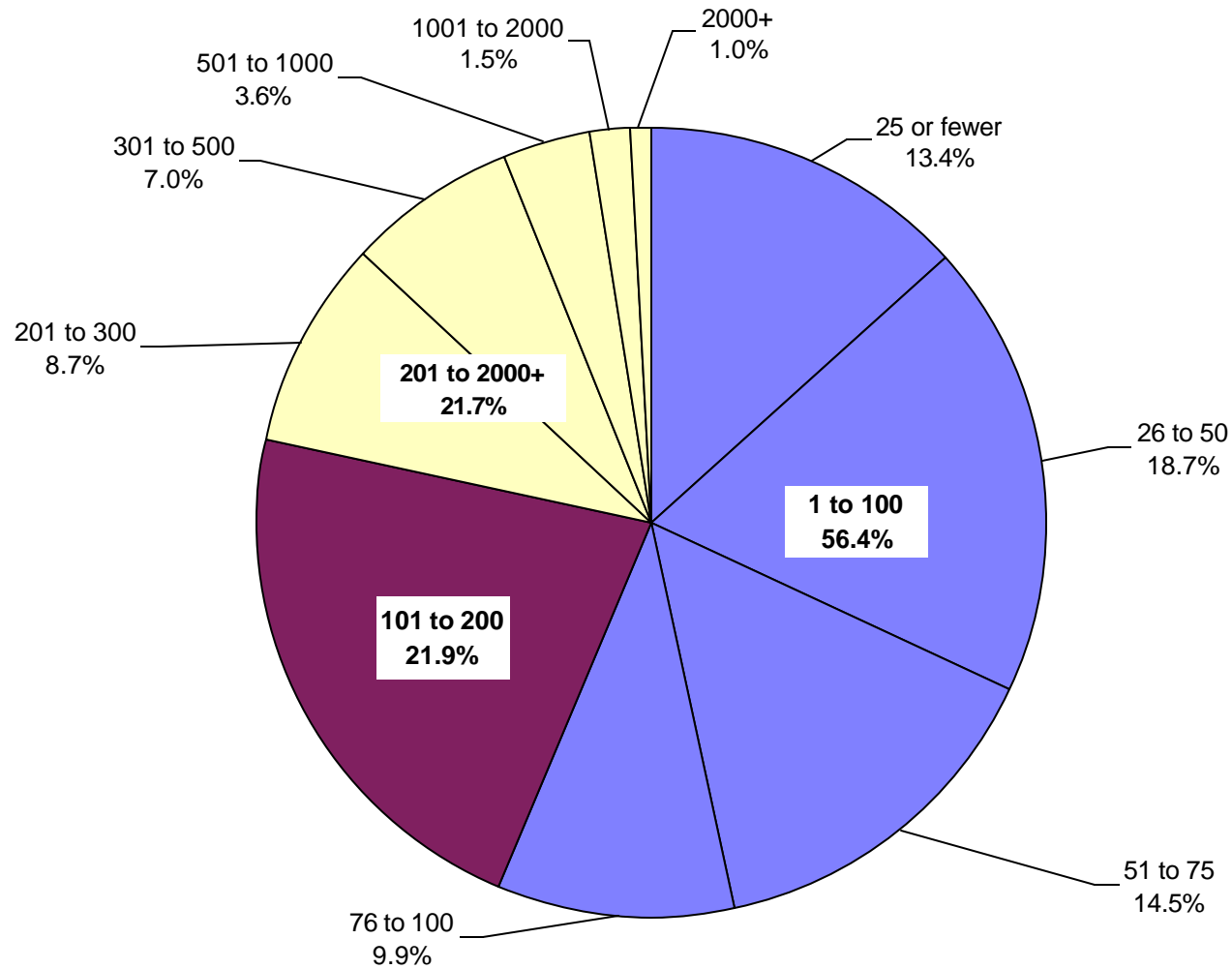


Based on 617 organizations reporting SIC code. For more information visit: <http://www.osha.gov/oshstats/sicser.html>



# Organization Size

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

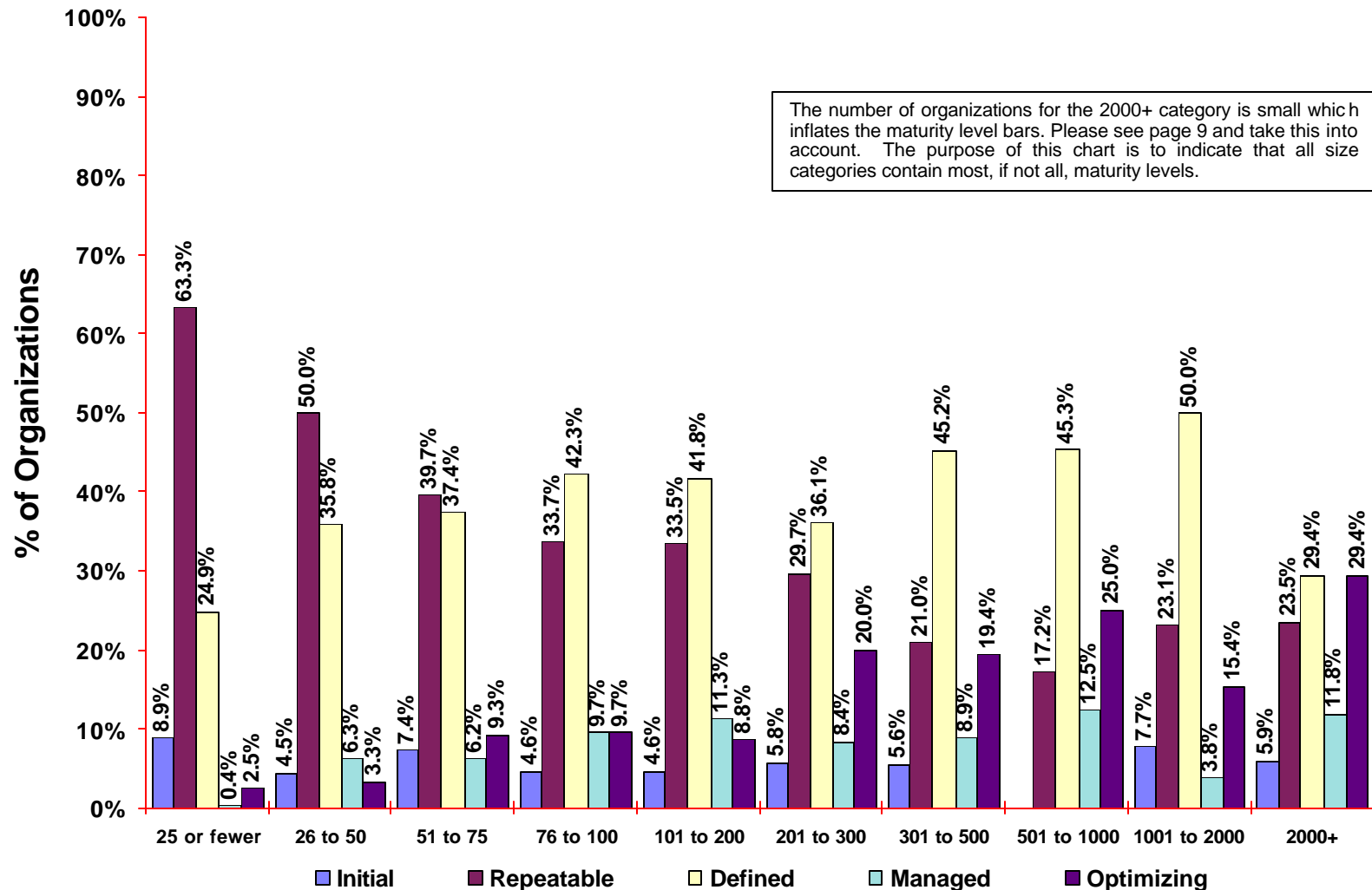


Based on **1,775** organizations reporting size data



# Maturity Profile by Organization Size

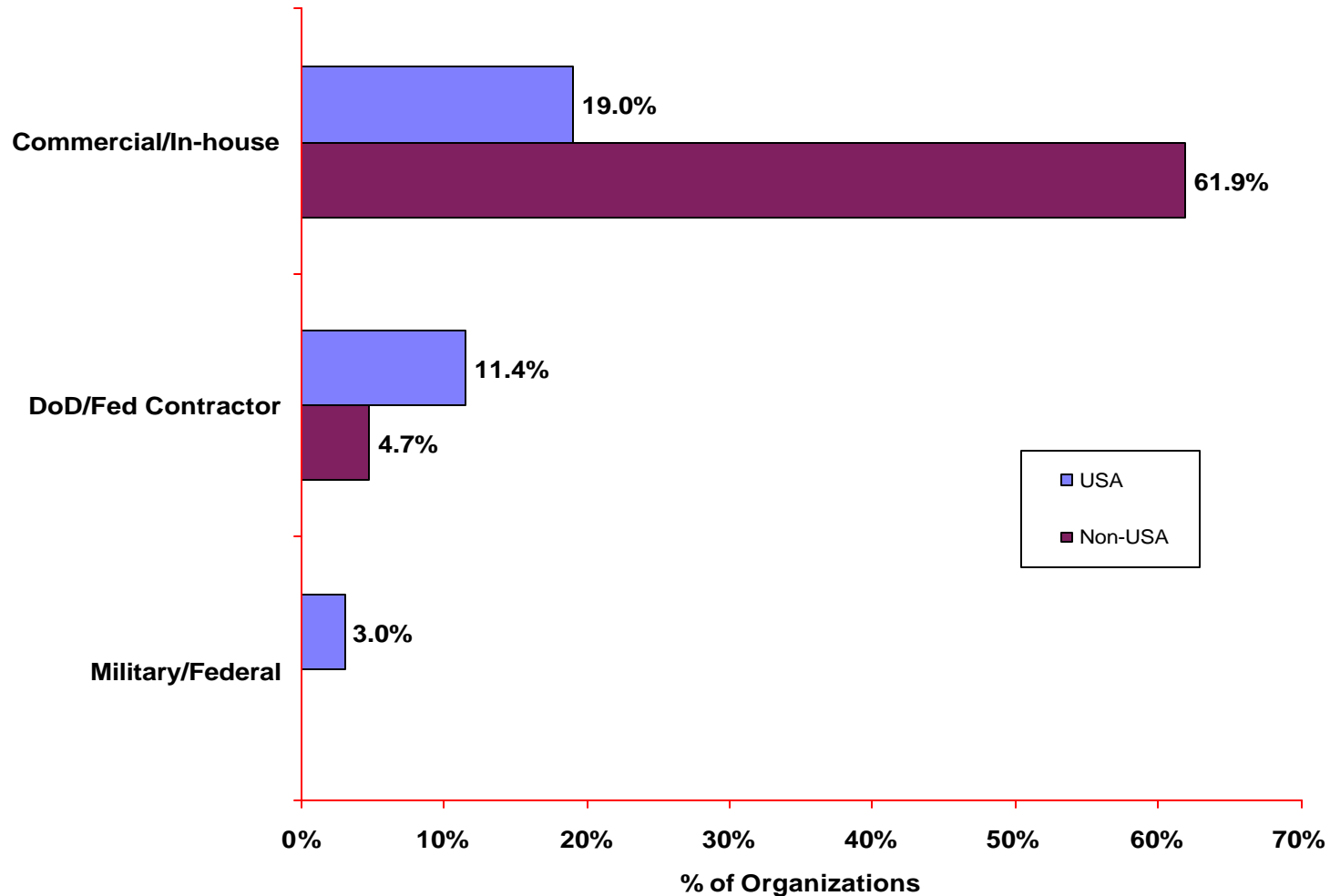
Based on the total number of employees within the area of the organization that was appraised



Based on 1,775 organizations reporting size data and a maturity level rating



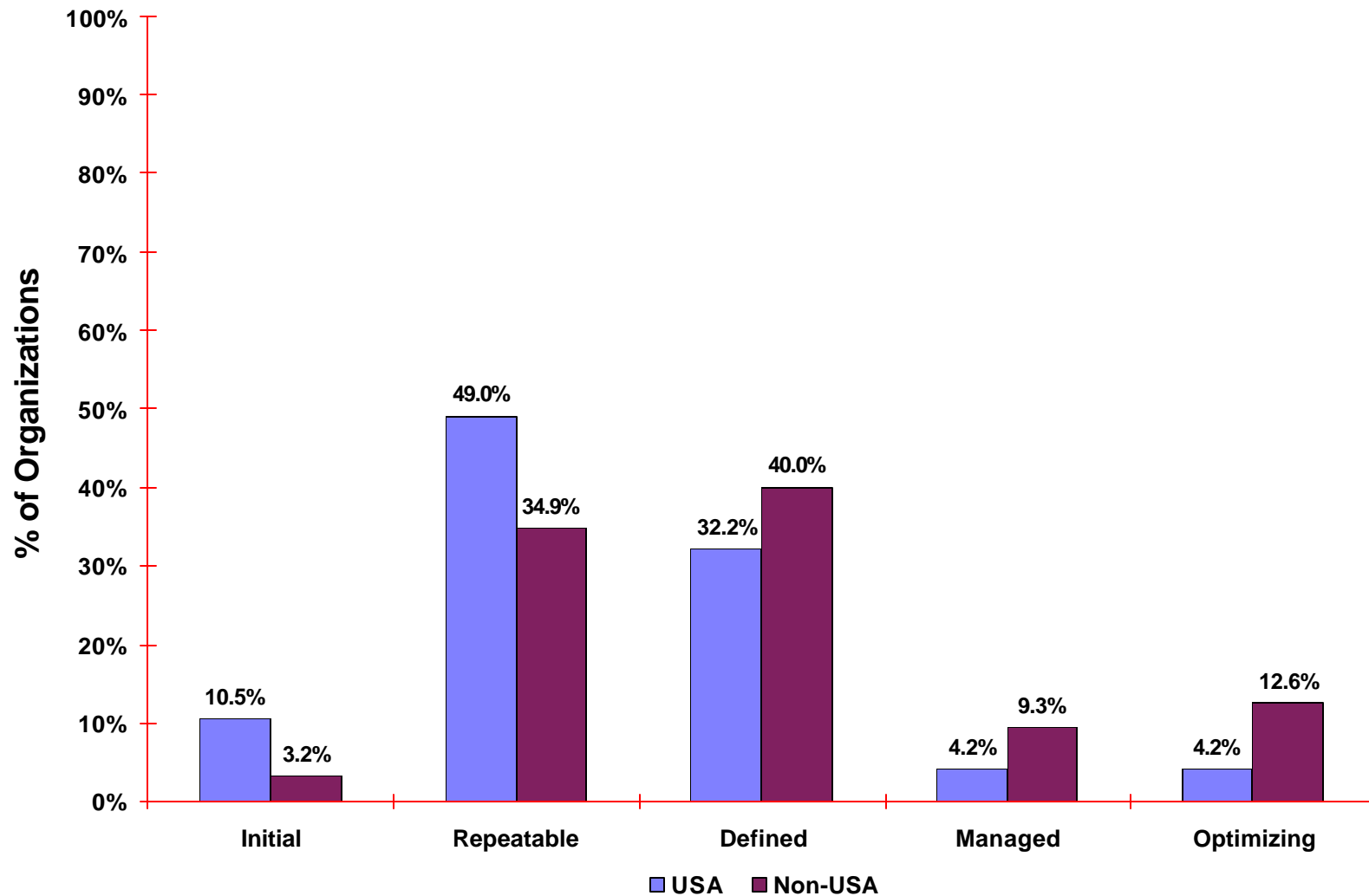
# USA and Non-USA Reporting Organization Categories



Based on **602** U.S. organizations and **1202** Non-USA organizations reporting organization categories



# Maturity Profile by All Reporting USA and Non-USA Organizations



Based on **602** U.S. organizations and **1202** Non-USA organizations reporting categories and a maturity level rating



## Section 2: Community Trends

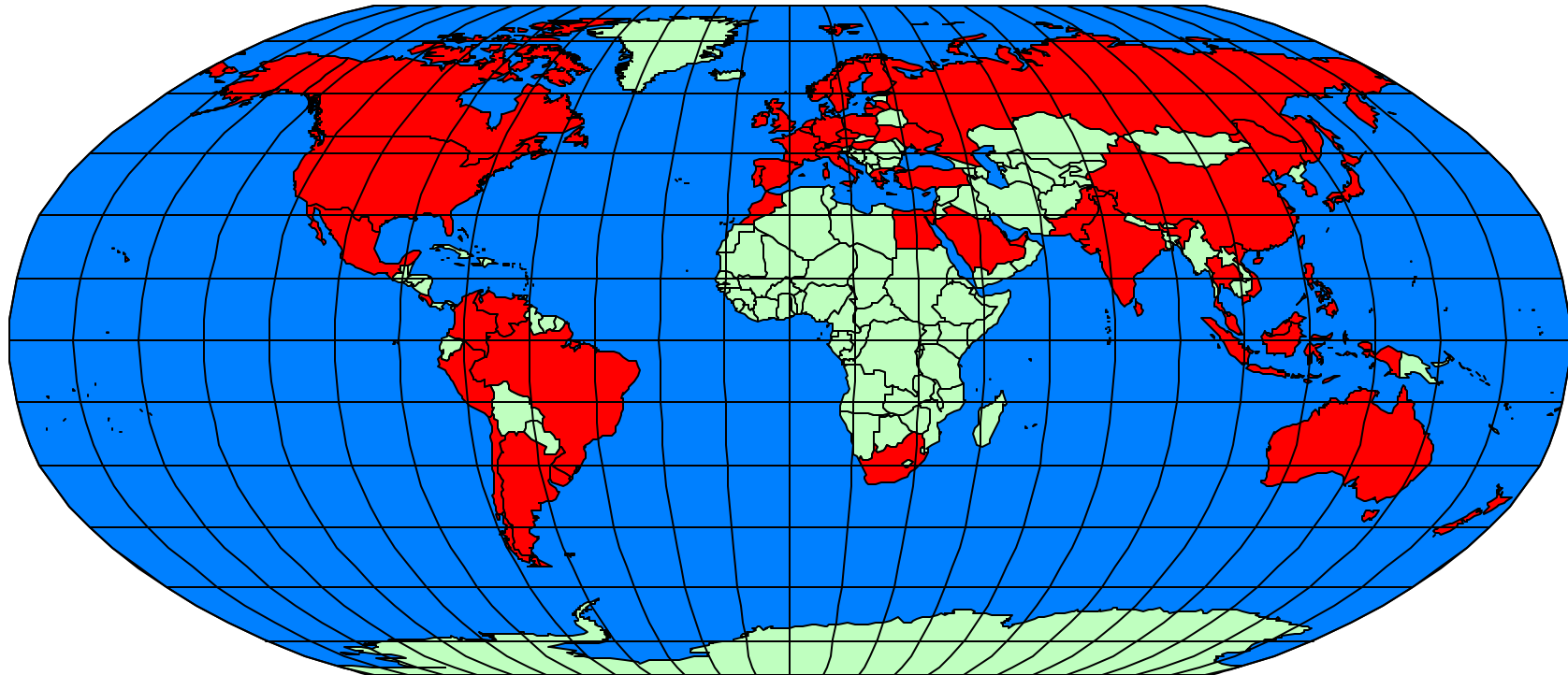
**CBA IPIs , SPAs and SCAMPI v1.1 using the SW-CMM conducted since 1987 through December 2005 and reported to the SEI**

- **3,952 appraisals**
  - 3,330 CBA IPIs**
  - 484 SPAs**
  - 138 SCAMPIs**
- **3,049 organizations**
- **1,241 participating companies**
- **704 reappraised organizations**
- **16,540 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     | Costa Rica | Cyprus       | Czech Republic | Denmark              |
| Egypt          | Finland       | France       | Germany    | Greece       | Hong Kong      | Hungary              |
| India          | Indonesia     | Ireland      | Israel     | Italy        | Japan          | Korea, Republic of   |
| Latvia         | Lithuania     | Malaysia     | Mauritius  | Mexico       | Morocco        | Netherlands          |
| New Zealand    | Norway        | Pakistan     | Peru       | Philippines  | Poland         | Portugal             |
| Puerto Rico    | Russia        | Saudi Arabia | Singapore  | South Africa | Spain          | Sri Lanka            |
| Sweden         | Switzerland   | Taiwan       | Thailand   | Turkey       | Ukraine        | United Arab Emirates |
| United Kingdom | United States | Uruguay      | Venezuela  | Vietnam      |                |                      |





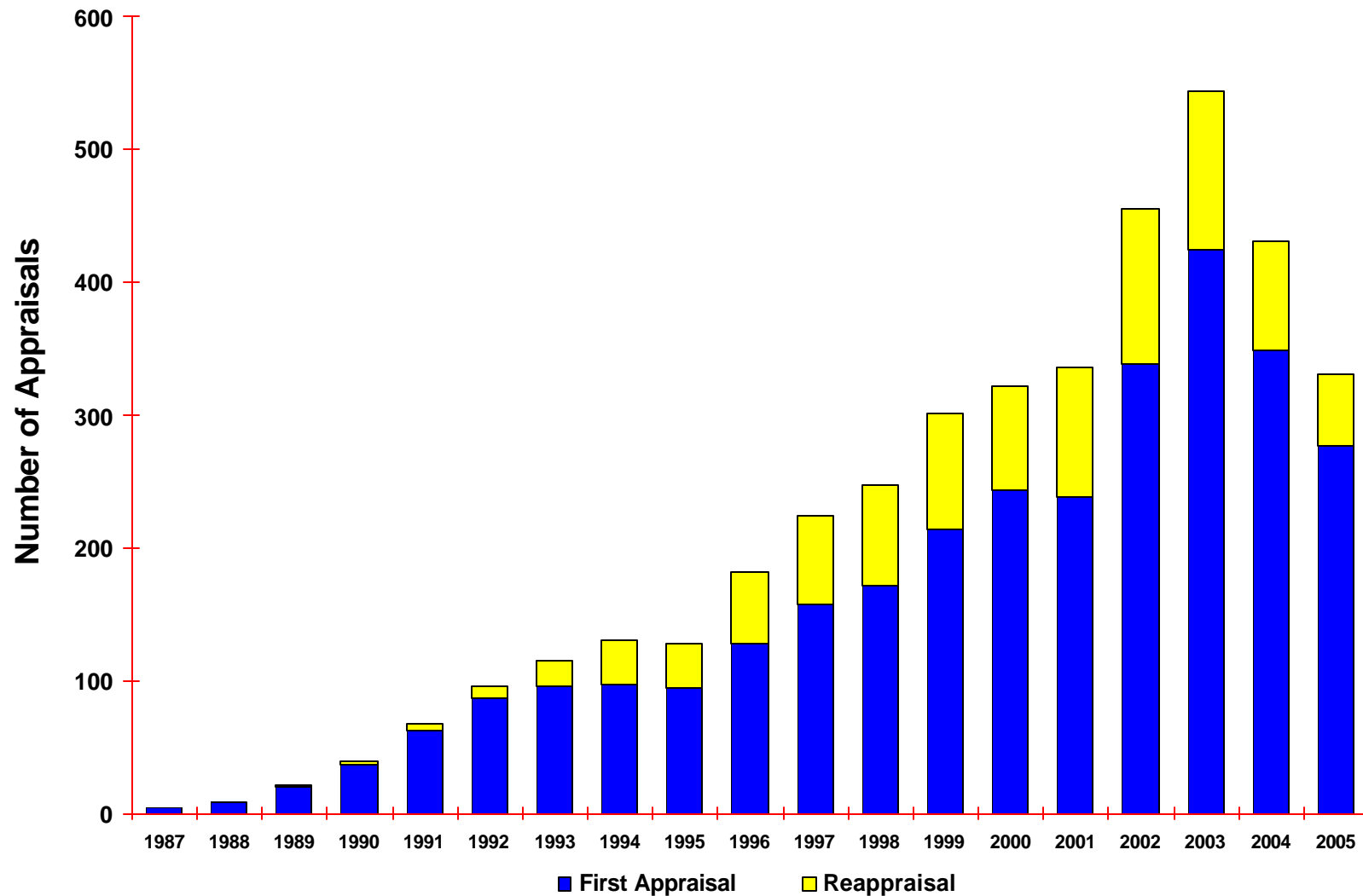
# Number of Appraisals and Maturity Levels Reported to the SEI by Country

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	12	No	Yes	Yes	No	Yes	Mauritius	10 or fewer					
Australia	36	Yes	Yes	Yes	No	Yes	Mexico	34	Yes	Yes	Yes	Yes	Yes
Austria	10 or fewer						Morocco	10 or fewer					
Barbados	10 or fewer						Netherlands	25	Yes	Yes	Yes	No	Yes
Belgium	17	Yes	Yes	Yes	No	No	New Zealand	10 or fewer					
Brazil	32	Yes	Yes	Yes	Yes	Yes	Norway	10 or fewer					
Canada	85	Yes	Yes	Yes	Yes	Yes	Pakistan	10 or fewer					
Chile	29	Yes	Yes	Yes	No	Yes	Peru	10 or fewer					
China	354	Yes	Yes	Yes	Yes	Yes	Philippines	13	No	Yes	Yes	No	Yes
Colombia	10 or fewer						Poland	10 or fewer					
Costa Rica	10 or fewer						Portugal	10 or fewer					
Cyprus	10 or fewer						Puerto Rico	10 or fewer					
Czech Republic	10 or fewer						Russia	10 or fewer					
Denmark	10 or fewer						Saudi Arabia	10 or fewer					
Egypt	10 or fewer						Singapore	23	Yes	Yes	Yes	No	Yes
Finland	10 or fewer						South Africa	10 or fewer					
France	151	Yes	Yes	Yes	Yes	Yes	Spain	28	No	Yes	Yes	Yes	Yes
Germany	76	Yes	Yes	Yes	Yes	No	Sri Lanka	10 or fewer					
Greece	10 or fewer						Sweden	10 or fewer					
Hong Kong	12	Yes	Yes	Yes	Yes	No	Switzerland	10 or fewer					
Hungary	10 or fewer						Taiwan	10 or fewer					
India	422	Yes	Yes	Yes	Yes	Yes	Thailand	23	Yes	Yes	Yes	No	No
Indonesia	10 or fewer						Turkey	10 or fewer					
Ireland	11	Yes	Yes	Yes	No	No	Ukraine	10 or fewer					
Israel	32	Yes	Yes	Yes	No	No	United Arab Emirates	10 or fewer					
Italy	40	Yes	Yes	Yes	No	Yes	United Kingdom	144	Yes	Yes	Yes	No	No
Japan	177	Yes	Yes	Yes	Yes	Yes	United States	2035	Yes	Yes	Yes	Yes	Yes
Korea, Republic of	78	Yes	Yes	Yes	Yes	Yes	Uruguay	10 or fewer					
Latvia	10 or fewer						Venezuela	10 or fewer					
Lithuania	10 or fewer						Vietnam	10 or fewer					
Malaysia	10 or fewer												

The organization maturity profile, page 6, 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 the SEIR web site, please register to join. Registration and use of the site are free.



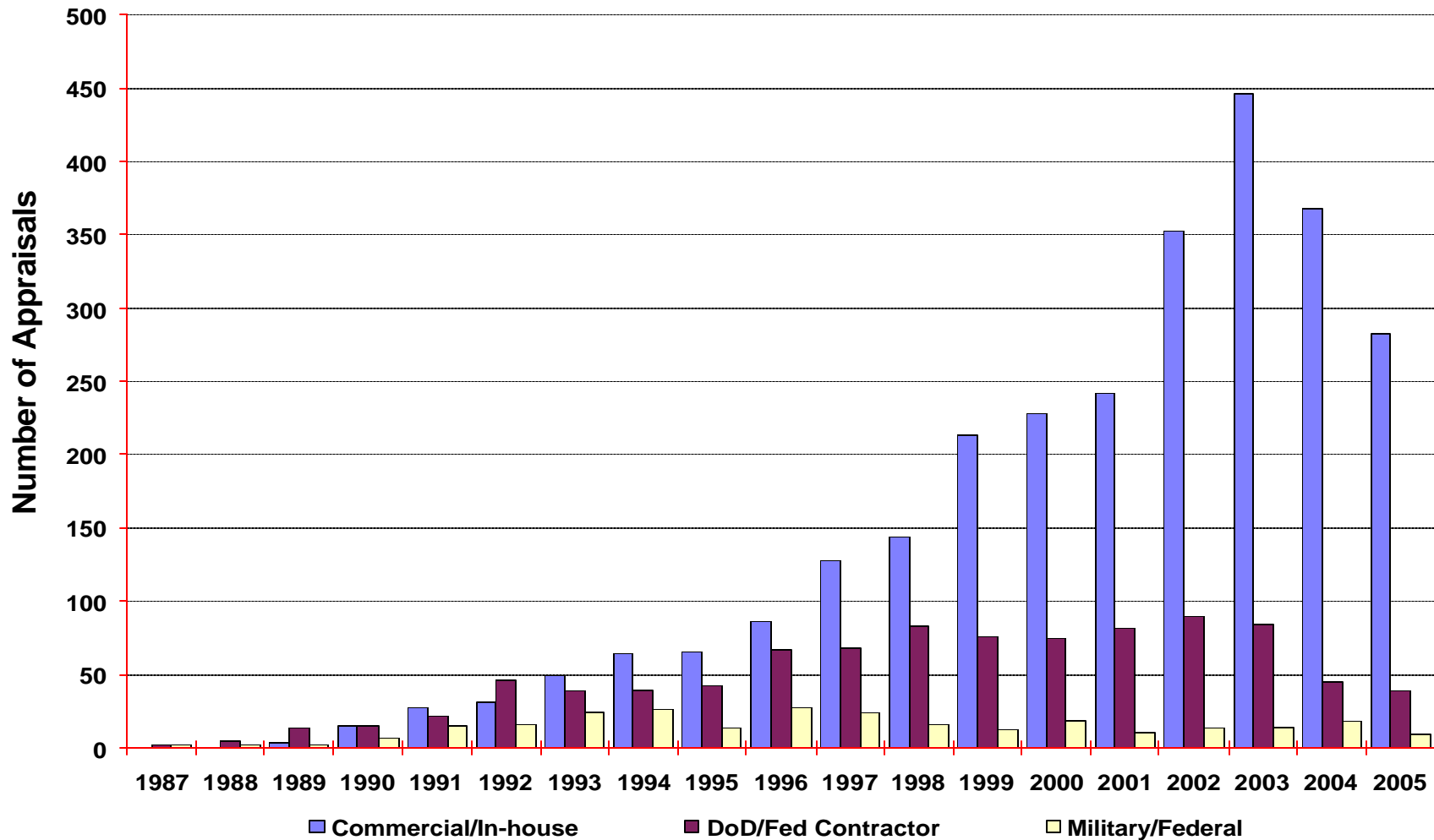
# Number of SW-CMM Appraisals Reported to the SEI by Year



Based on **3,952** appraisals conducted through **Dec 2005** and reported to the SEI



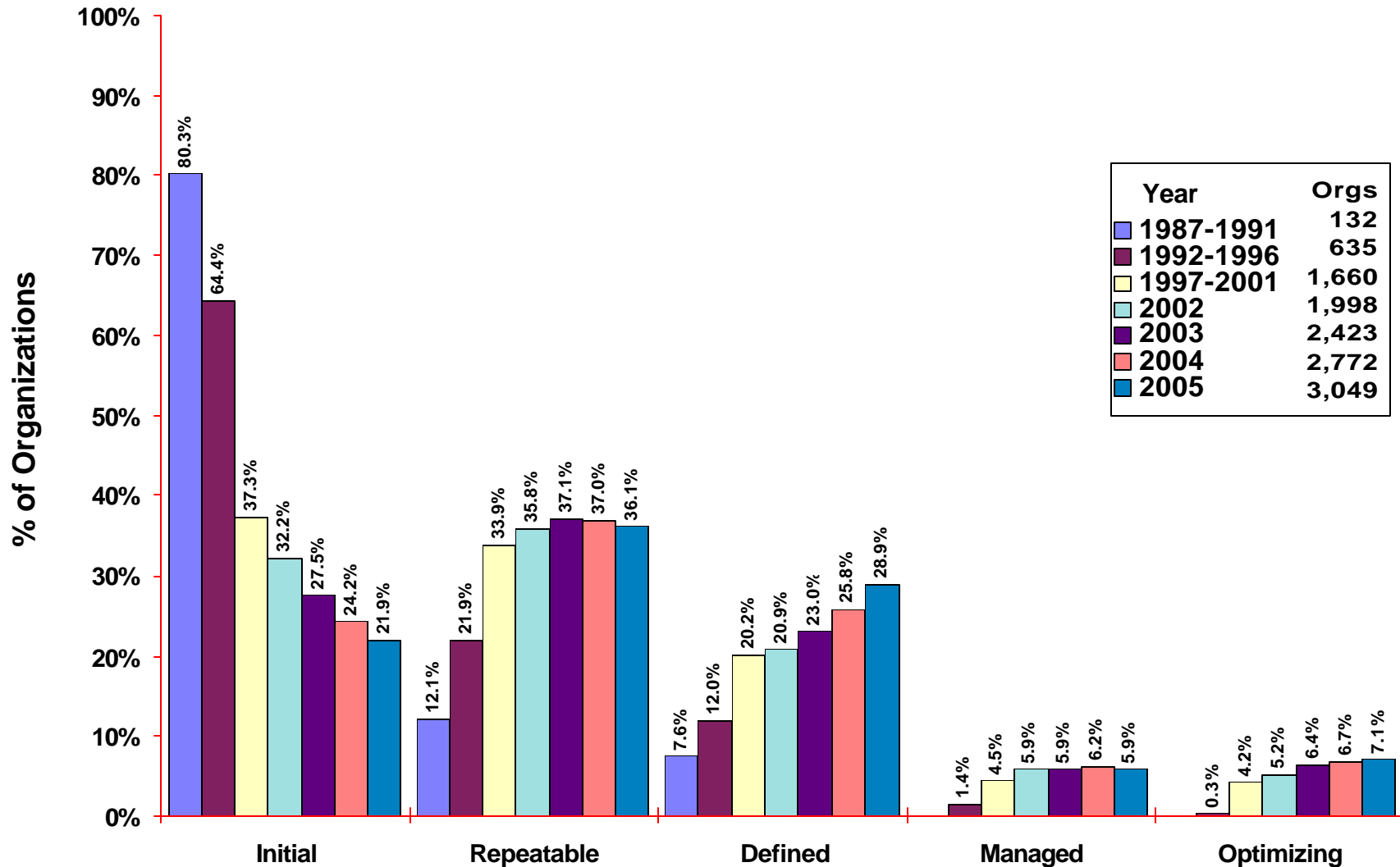
# Number of SW-CMM Appraisals Reported to the SEI by Organization Categories and Year



Based on 3,950 appraisals reporting organization categories



# 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 5.



## Section 3: Organizational Trends

**Appraisals conducted through December 2005 and reported to the SEI**

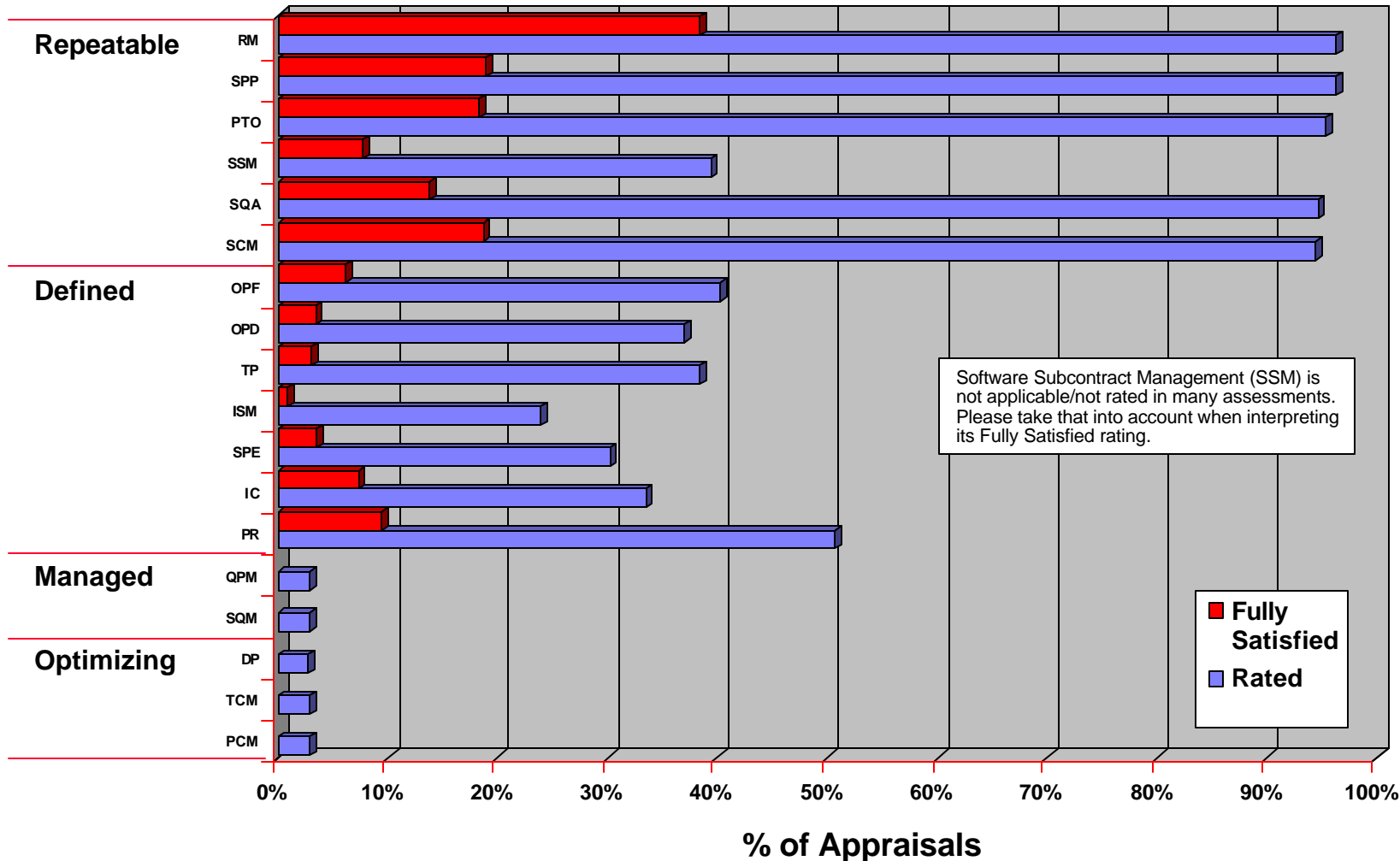
- **1,956 Key Process Area (KPA) profiles**
  - **satisfaction of KPAs by maturity level for organizations appraised at levels 1 and 2**
- **704 reappraised organizations**
  - **accounting for 1,617 appraisals**
  - **although some organizations conducted multiple reappraisals, only the first and latest 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

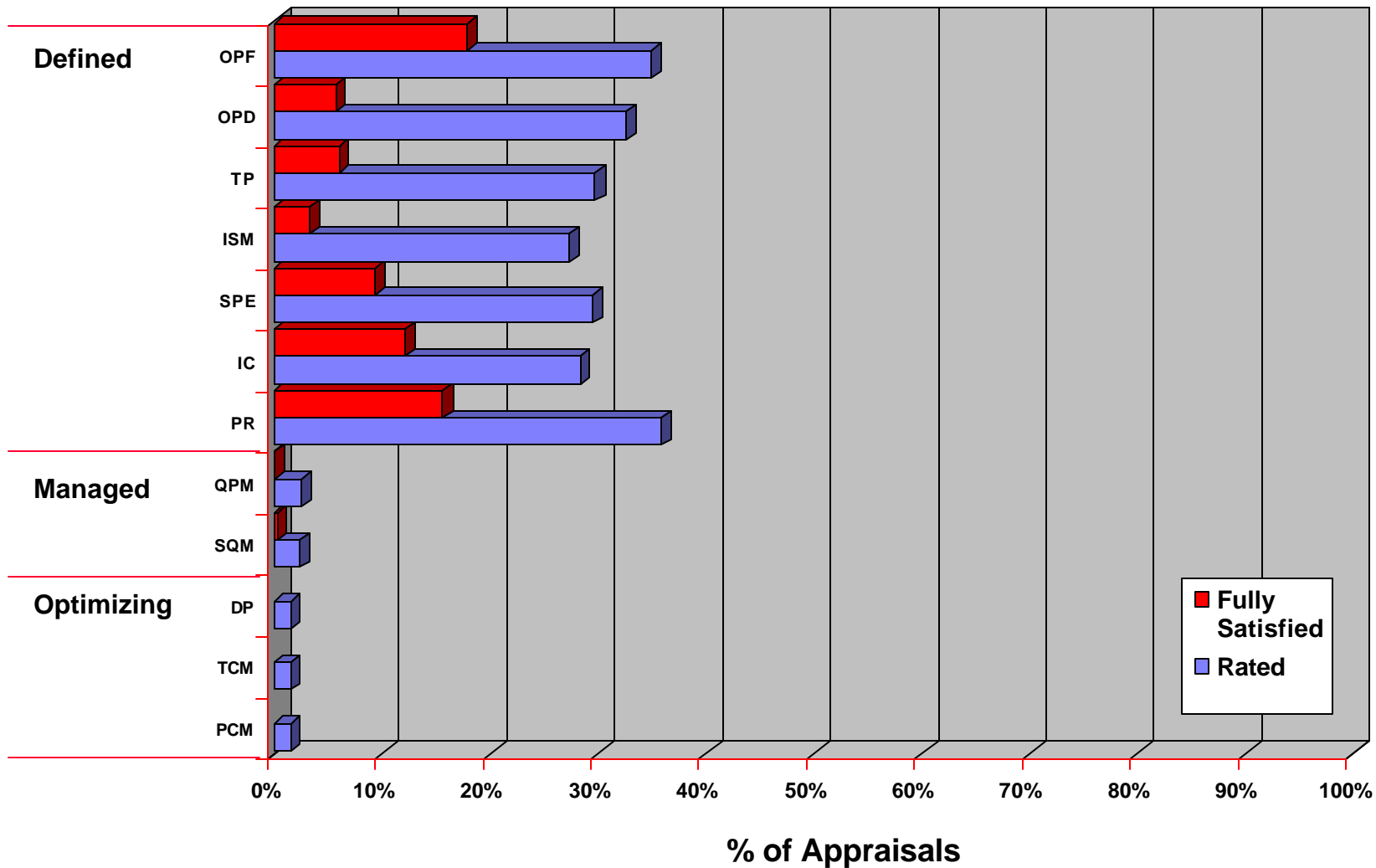


Based on 582 CBA IPI and SCAMPI with SW-CMM appraisals reporting a maturity level rating



# Key Process Area Profiles - 2

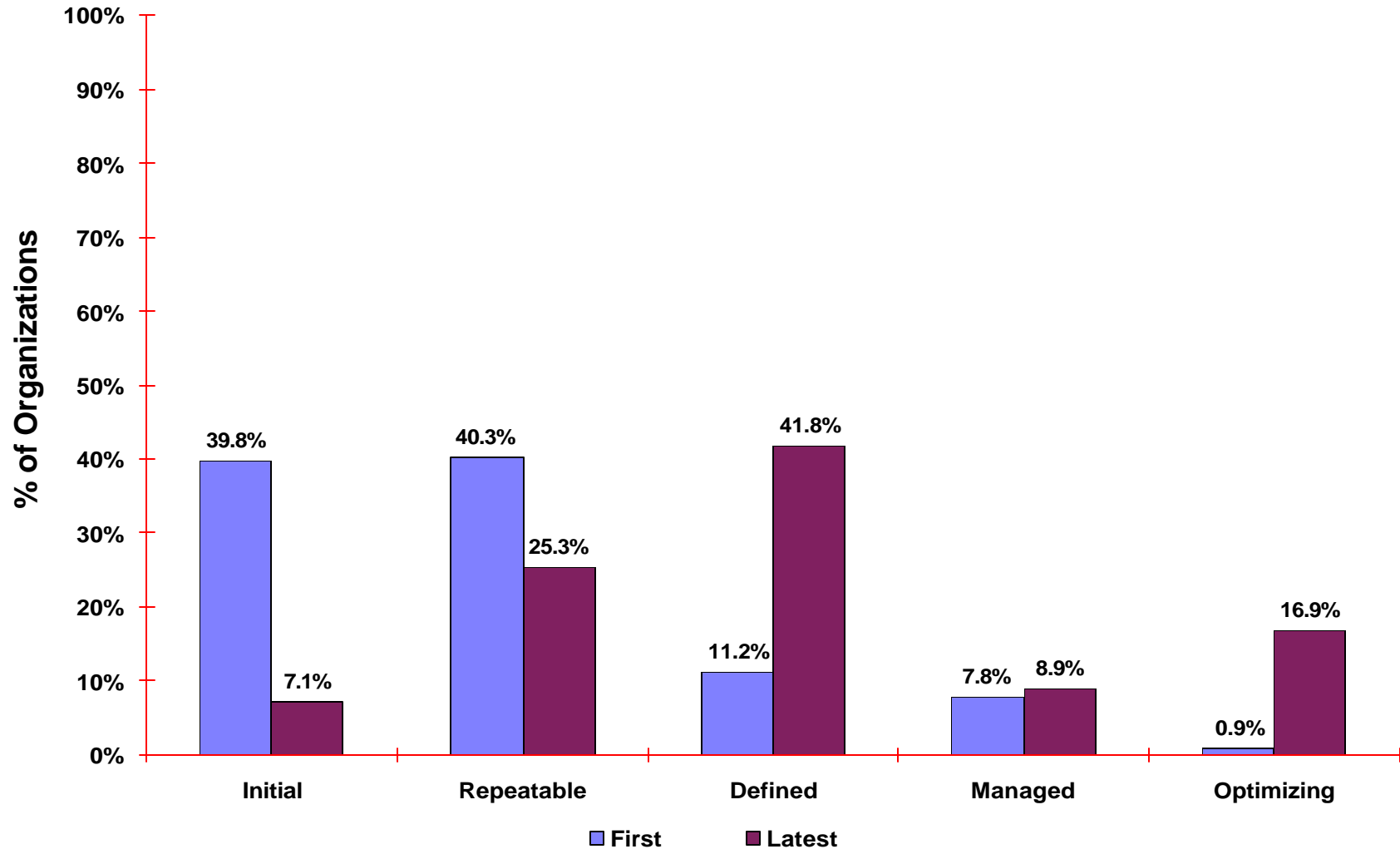
## Organizations Appraised at Level 2



Based on 1374 CBA IPI and SCAMPI With SW-CMM appraisals reporting a maturity level rating



# Maturity Level of First and Latest Appraisal

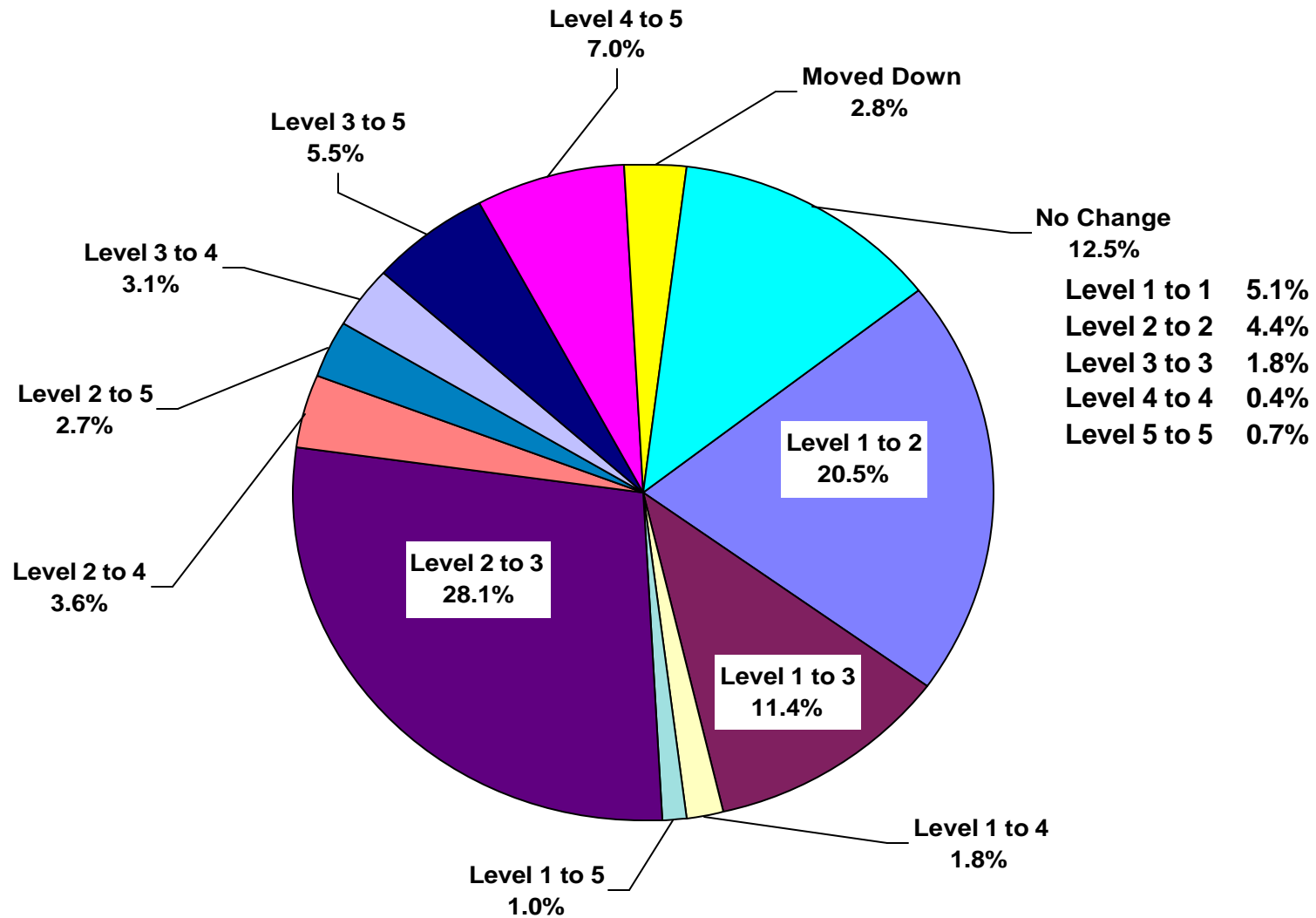


Based on 704 reappraised organizations using their first and latest appraisal





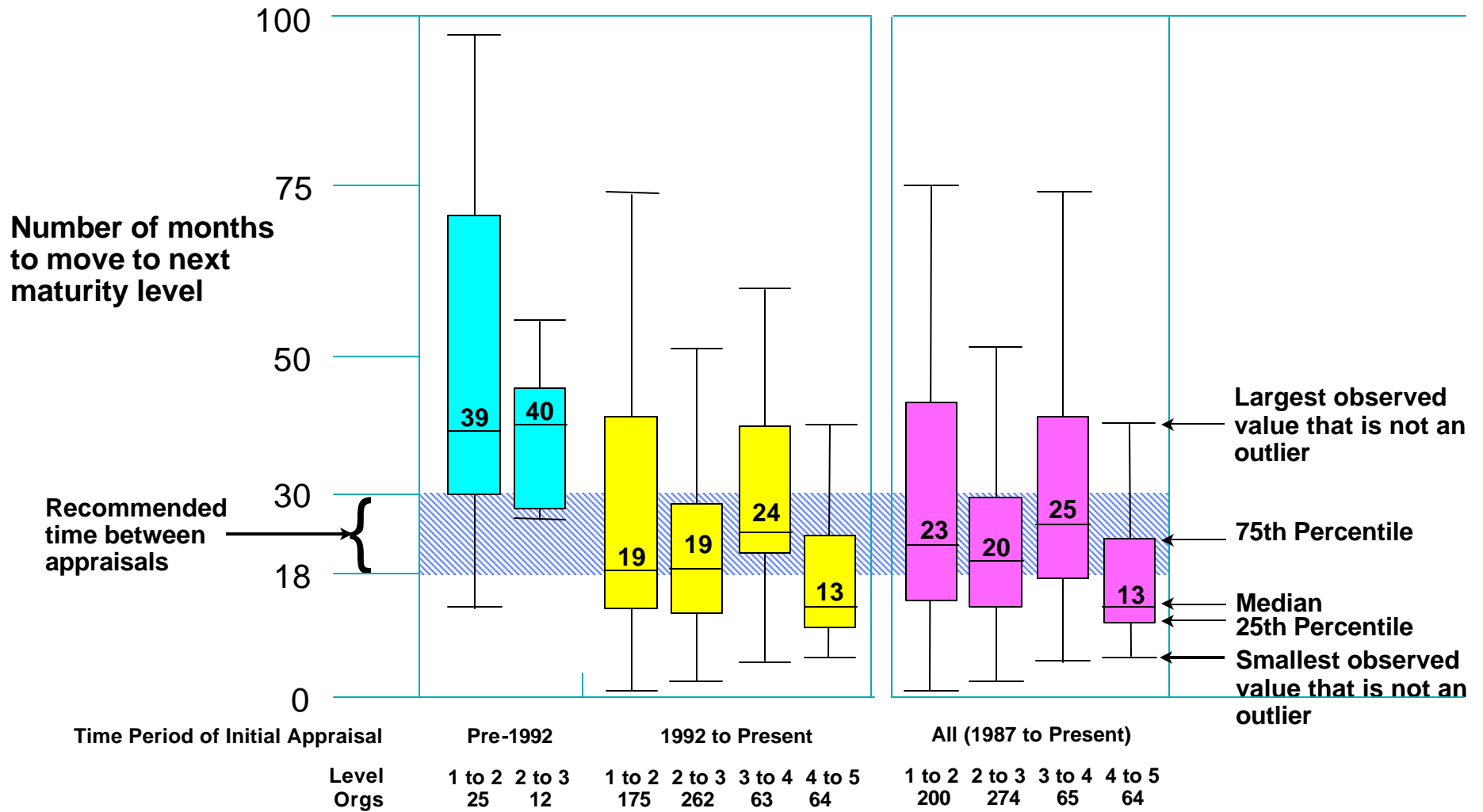
# Reappraisals Change in Maturity Level



Based on 704 reappraised organizations using their first and latest appraisal



# Time to Move Up





# Summary of Current Status

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

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

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

**More Non-USA appraisals reported than U.S. in this 5 year snapshot**



## Summary of Organizational Trends - 1

**The number of SW-CMM appraisals steadily declined during the two years sunset period (2004-2005) while CMMI SCAMPI appraisals have been rapidly increased (See Process Maturity Profile for CMMI V1.1)**

**NO SW-CMM appraisals have been reported since Dec. 2005**

**Software Subcontract Management 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**



## Summary of Organizational Trends (continued) - 2

**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 19 months**
- **maturity level 2 to 3 is 19 months**
- **maturity level 3 to 4 is 24 months**
- **maturity level 4 to 5 is 13 months**

**Note:**

**Since the September 2005 report, the median time to move from maturity level 2 to 3 dropped from 20 month to 19 month and the median time to move from maturity level 3 to 4 dropped from 25 month to 24 month.**



# Terms Used in this Report

- Appraisal** - The appraisal methods used in this report are the Software Process Assessment (SPA), CMM-Based Appraisal for both Internal Process Improvement (CBA IPI) and Standard CMMI® Appraisal Method for Process Improvement (SCAMPI). 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.
- Non-USA** - 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.



## Contact Information

**Please visit:**

**<http://www.sei.cmu.edu/appraisal-program/profile/about.html>**

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

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