



Carnegie Mellon University  
**Software Engineering Institute**

# Process Maturity Profile

## Software CMM® 2004 Mid-Year Update

**August 2004**

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>.

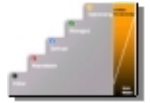
Our many thanks for their continuing cooperation with our data collection and analysis efforts.

CMMI Appraisal Program

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# Outline

## Introduction

## Current Status

## Community Trends

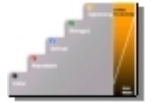
## Organizational Trends

## Summary

This briefing is based solely on the number of 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/managing/app.directory.html>



# Introduction - 1: Purpose and Source

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

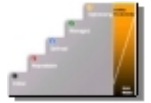
**This briefing uses information from appraisals using the SW-CMM in:**

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

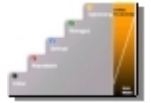
- Snapshot of the software community based on the most recent appraisal, since **2000**, of reporting organizations

## 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

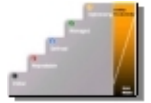


# Section 1: Current Status

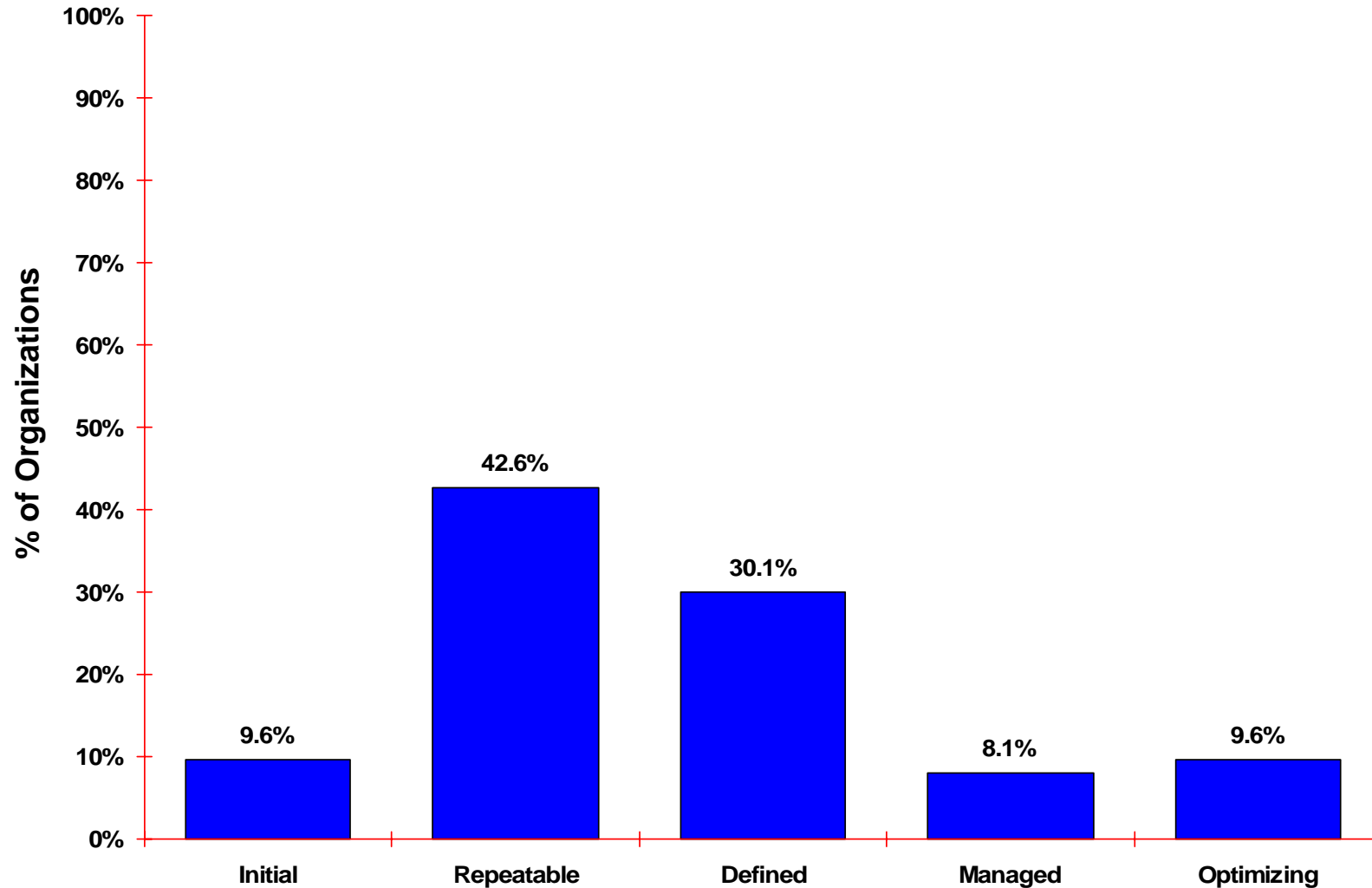
**Appraisals conducted from 2000 through June 2004  
and reported to the SEI by July 2004**

- **1,543 organizations**
- **741 participating companies**
- **7,848 projects**
- **59.2% Non-USA organizations**

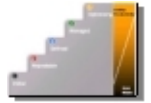
**Please refer to: Terms Used in this Report on page 29**



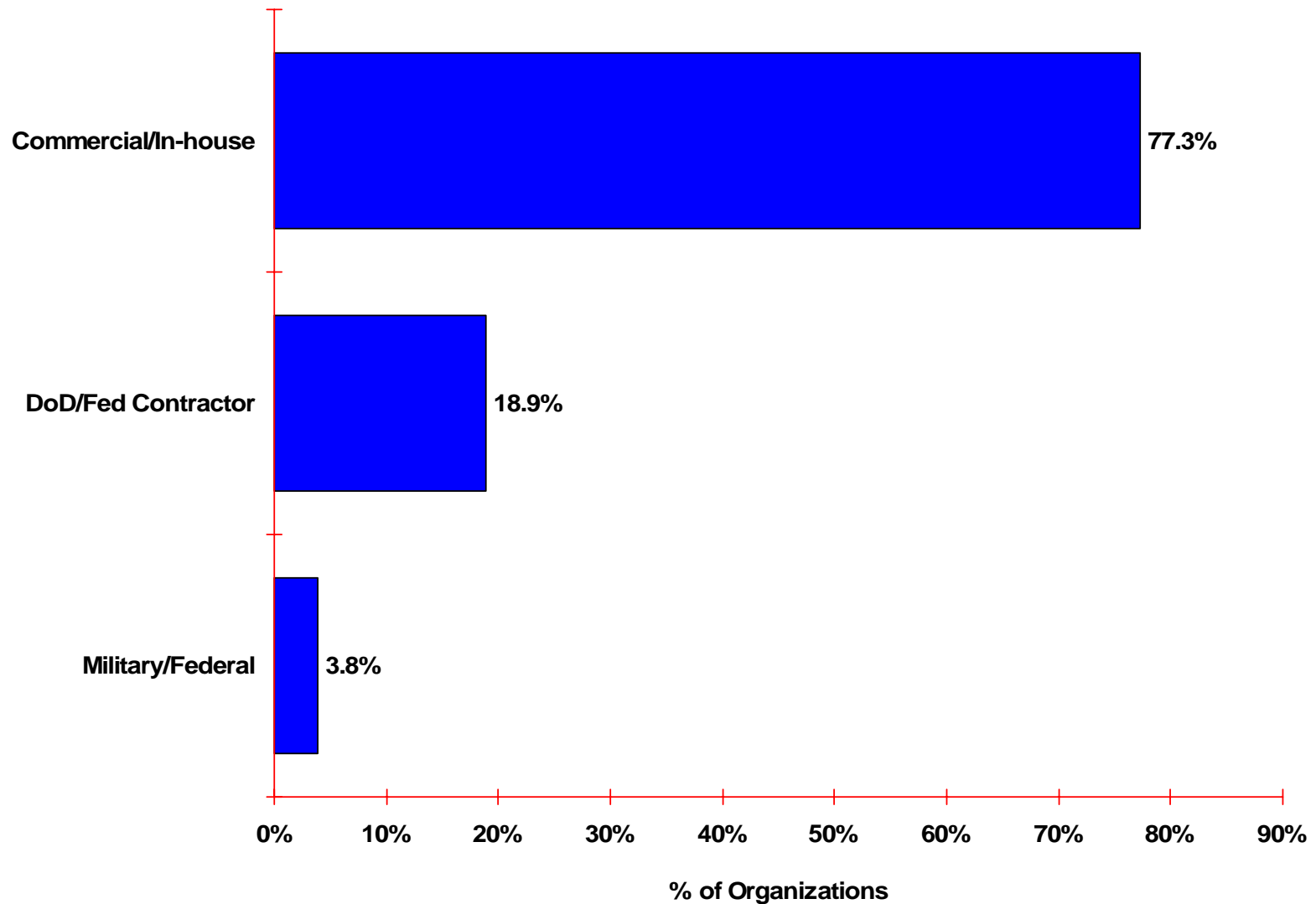
# Maturity Profile by All Reporting Organizations



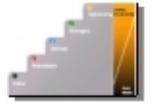
Based on most recent appraisal, since **2000**, of **1,543** organizations reporting a maturity level rating



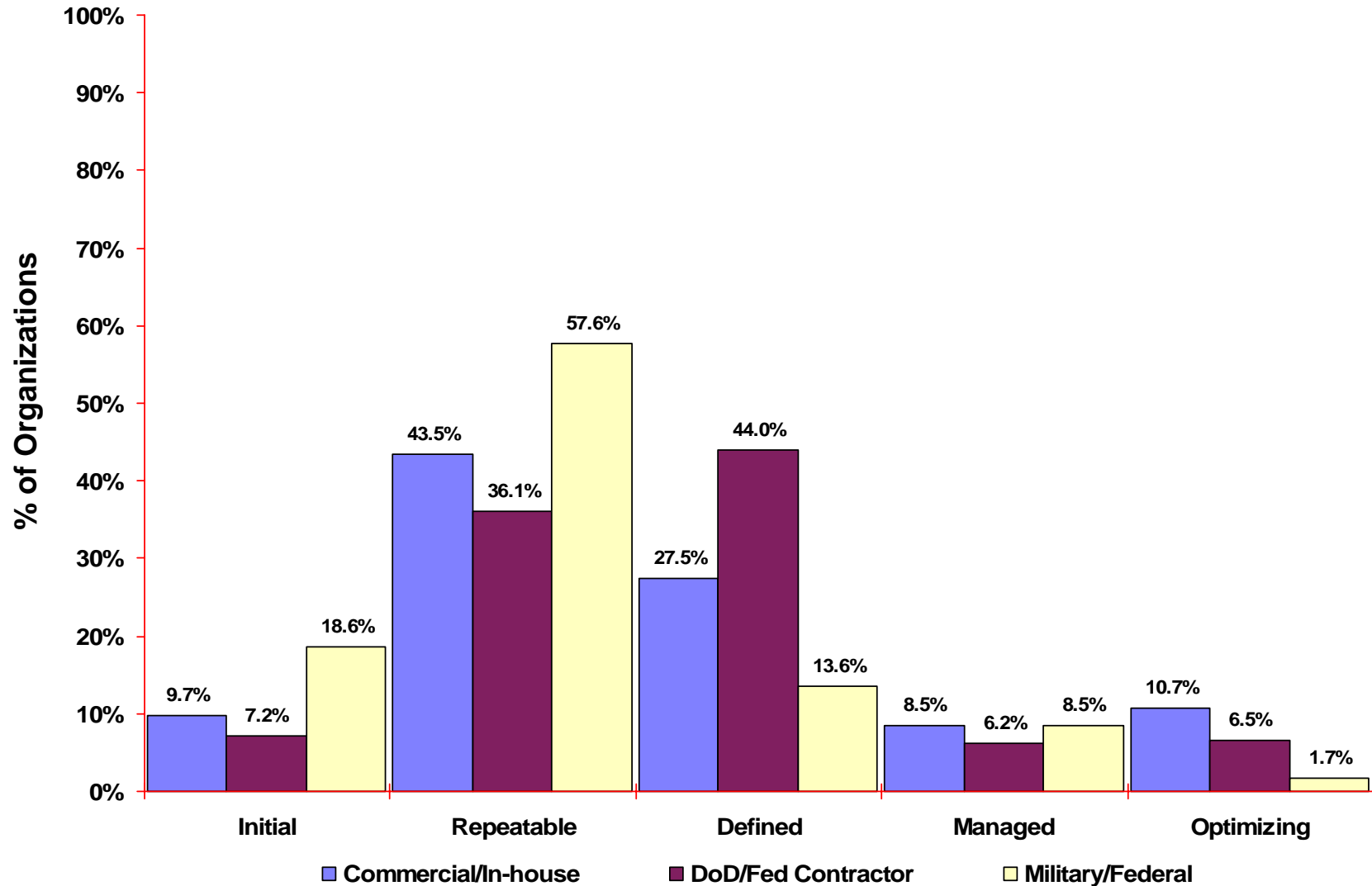
# Reporting Organization Categories



Based on **1,543** organizations reporting organization categories

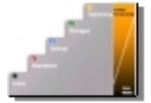


# Maturity Profile by Reporting Organization Categories



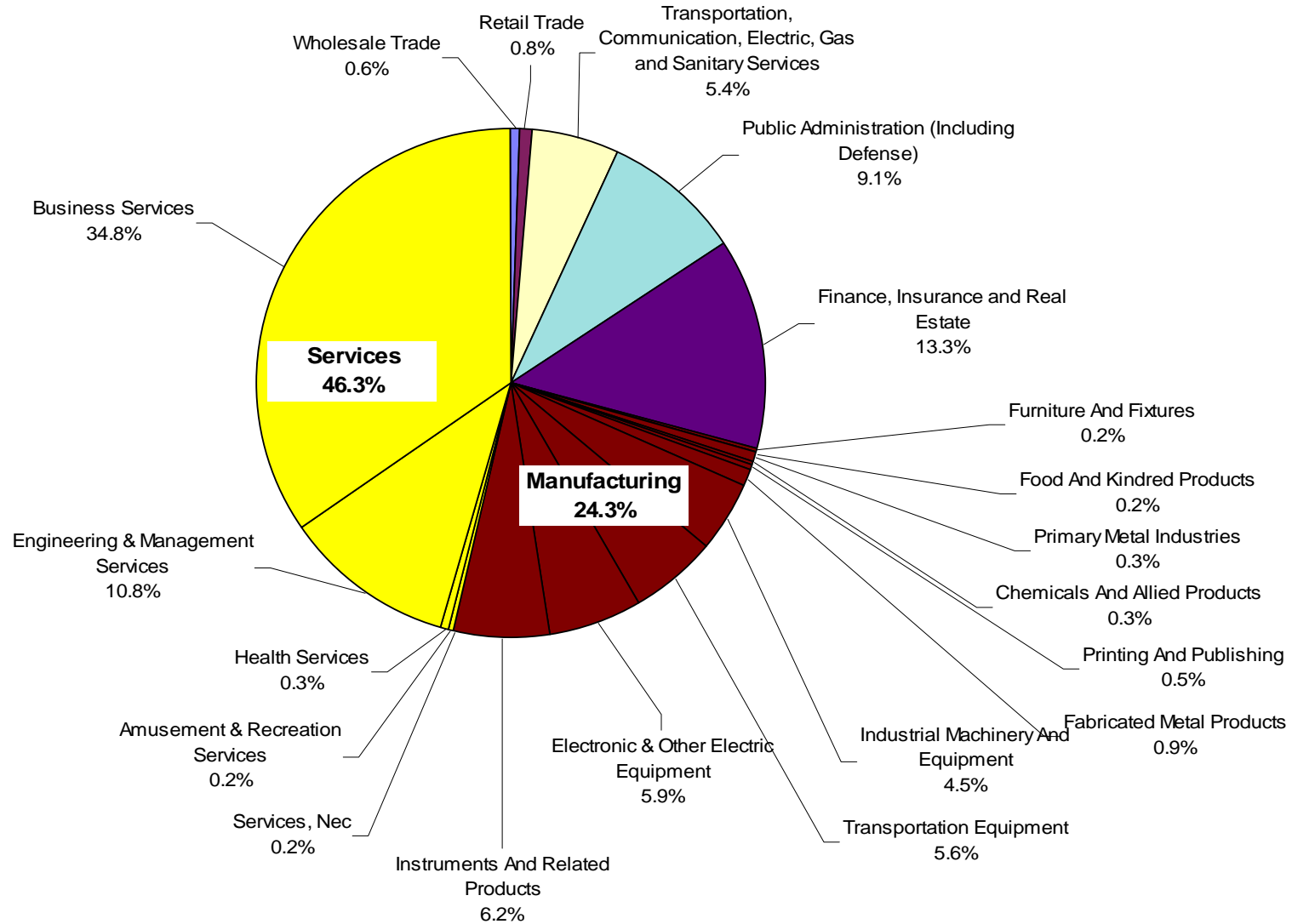
Based on most recent appraisal, since 2000, of 1,543 organizations reporting categories and a maturity level rating



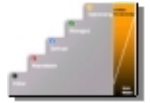


# Organization Type

Based on Primary Standard Industrial Classification (SIC) Code

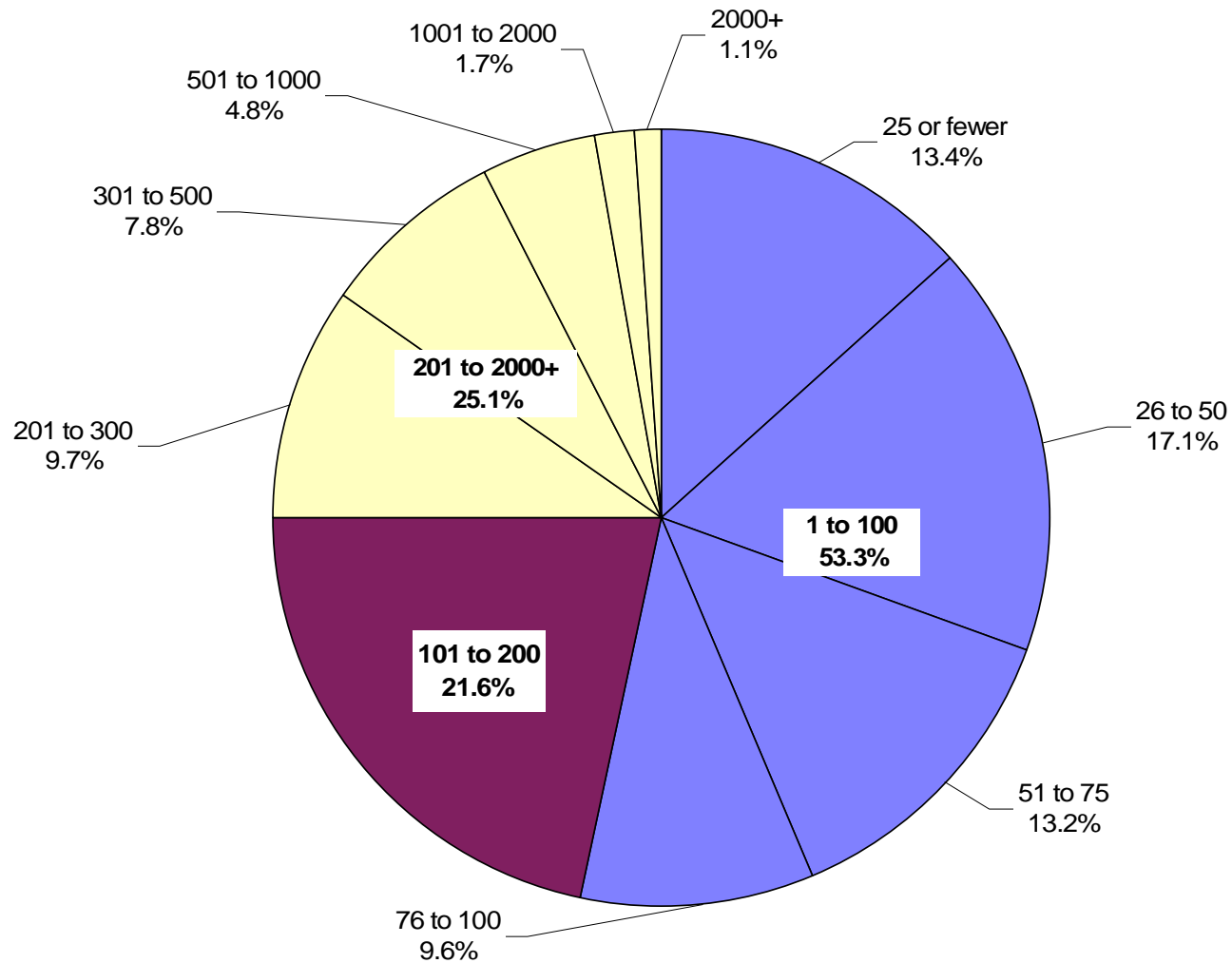


Based on 646 organizations reporting SIC code. For more information visit: <http://www.osha.gov/oshstats/sicser.html>

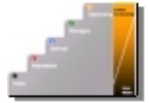


# Organization Size

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

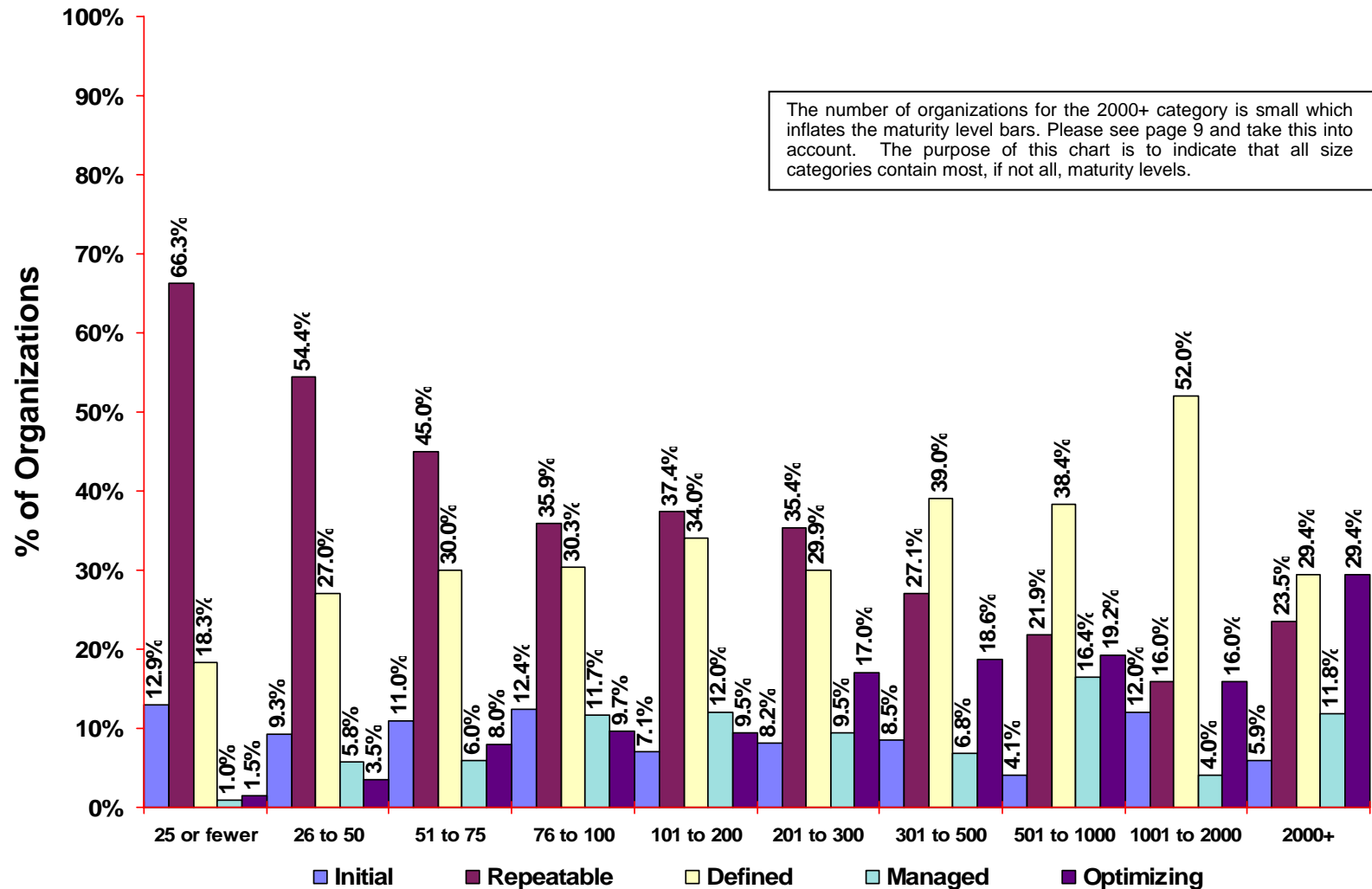


Based on **1,512** organizations reporting size data

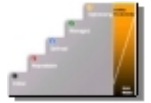


# Maturity Profile by Organization Size

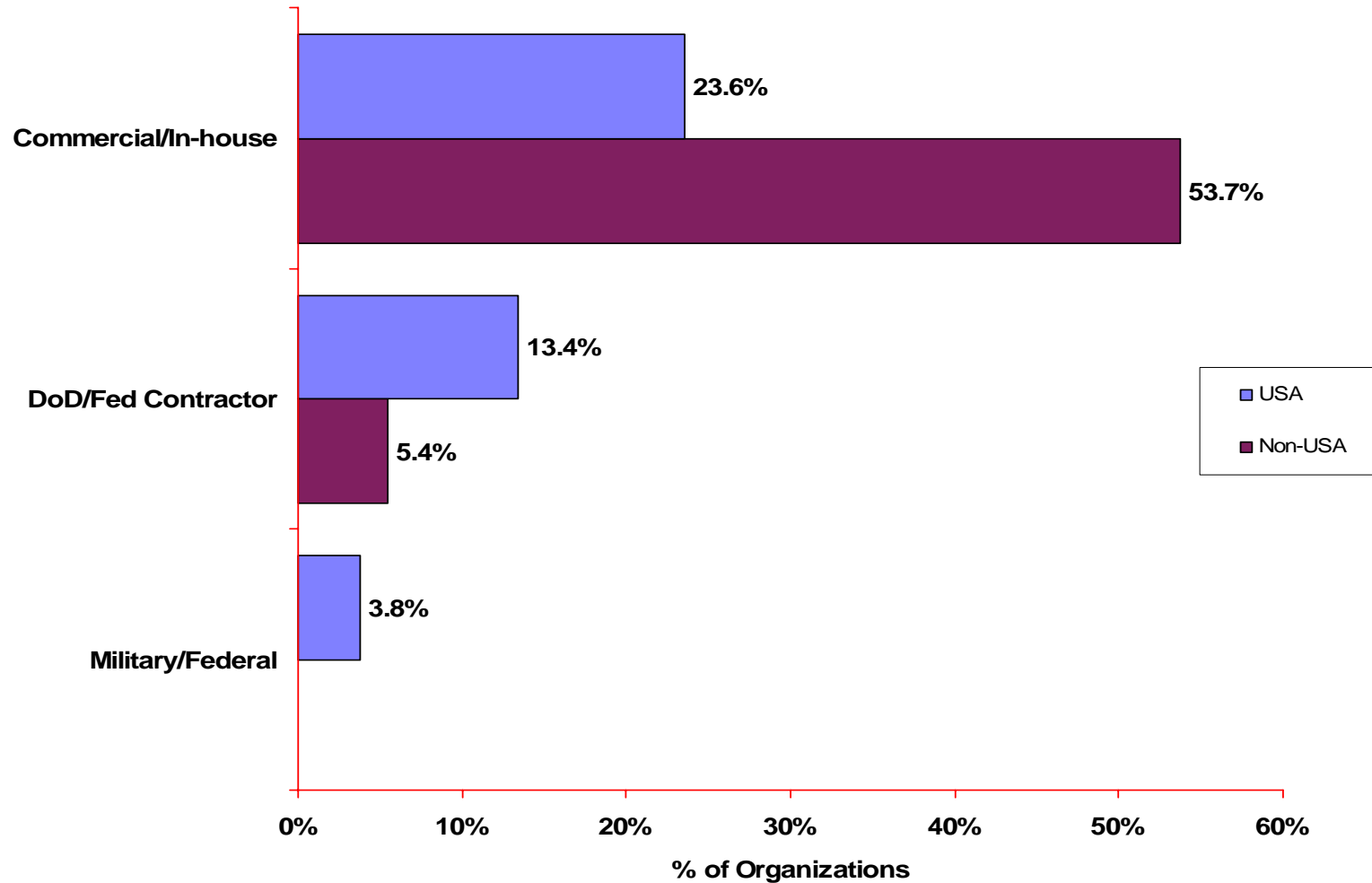
Based on the total number of employees within the area of the organization that was appraised



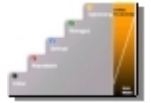
Based on 1,512 organizations reporting size data and a maturity level rating



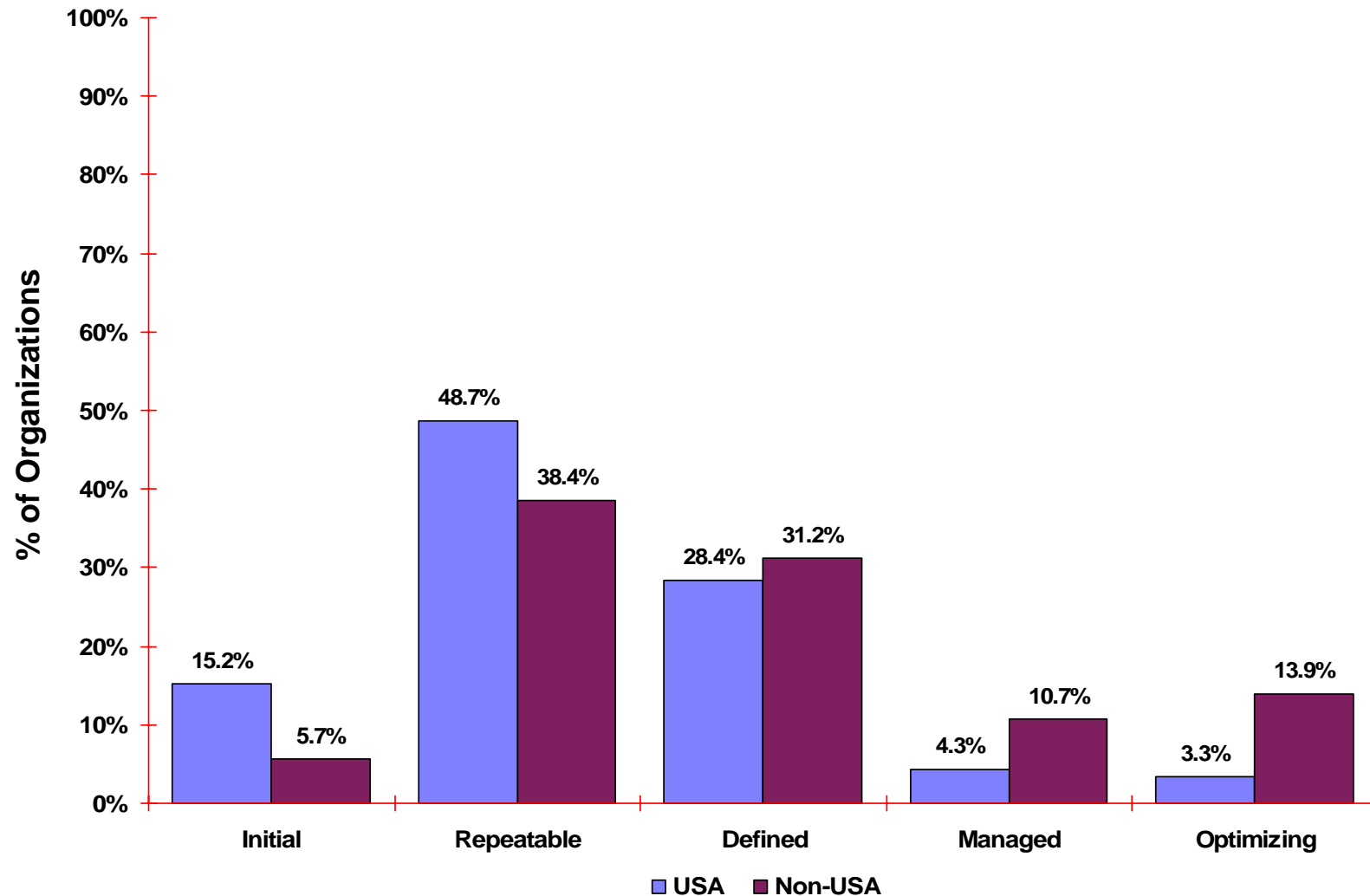
# USA and Non-USA Reporting Organization Categories



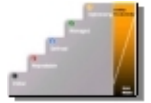
Based on **630** U.S. organizations and **913** Non-USA organizations reporting organization categories



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



Based on **630** U.S. organizations and **913** Non-USA organizations reporting categories and a maturity level rating

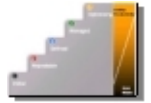


## Section 2: Community Trends

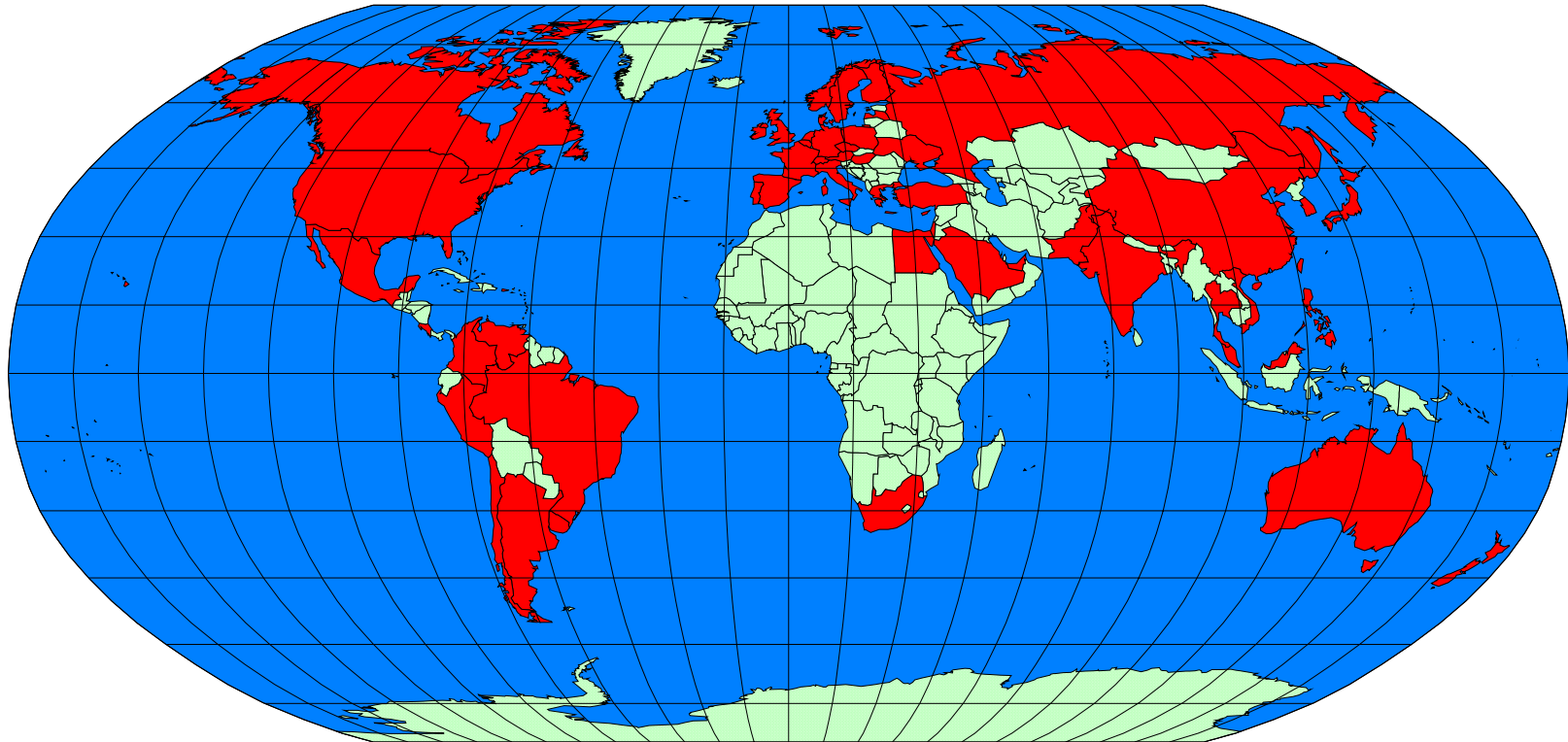
**CBA IPIs , SPAs and SCAMPI v1.1 using the SW-CMM conducted since 1987 through June 2004 and reported to the SEI by July 2004**

- **3,360 appraisals**
  - 2,853 CBA IPIs**
  - 484 SPAs**
  - 23 SCAMPIs**
- **2,561 organizations**
- **922 participating companies**
- **630 reappraised organizations**
- **14,126 projects**

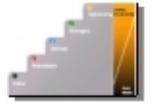
**Please refer to: Terms Used in this Report on page 29**



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



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

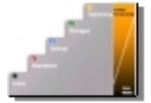


# Number of Appraisals and Maturity Levels Reported to the SEI by Country

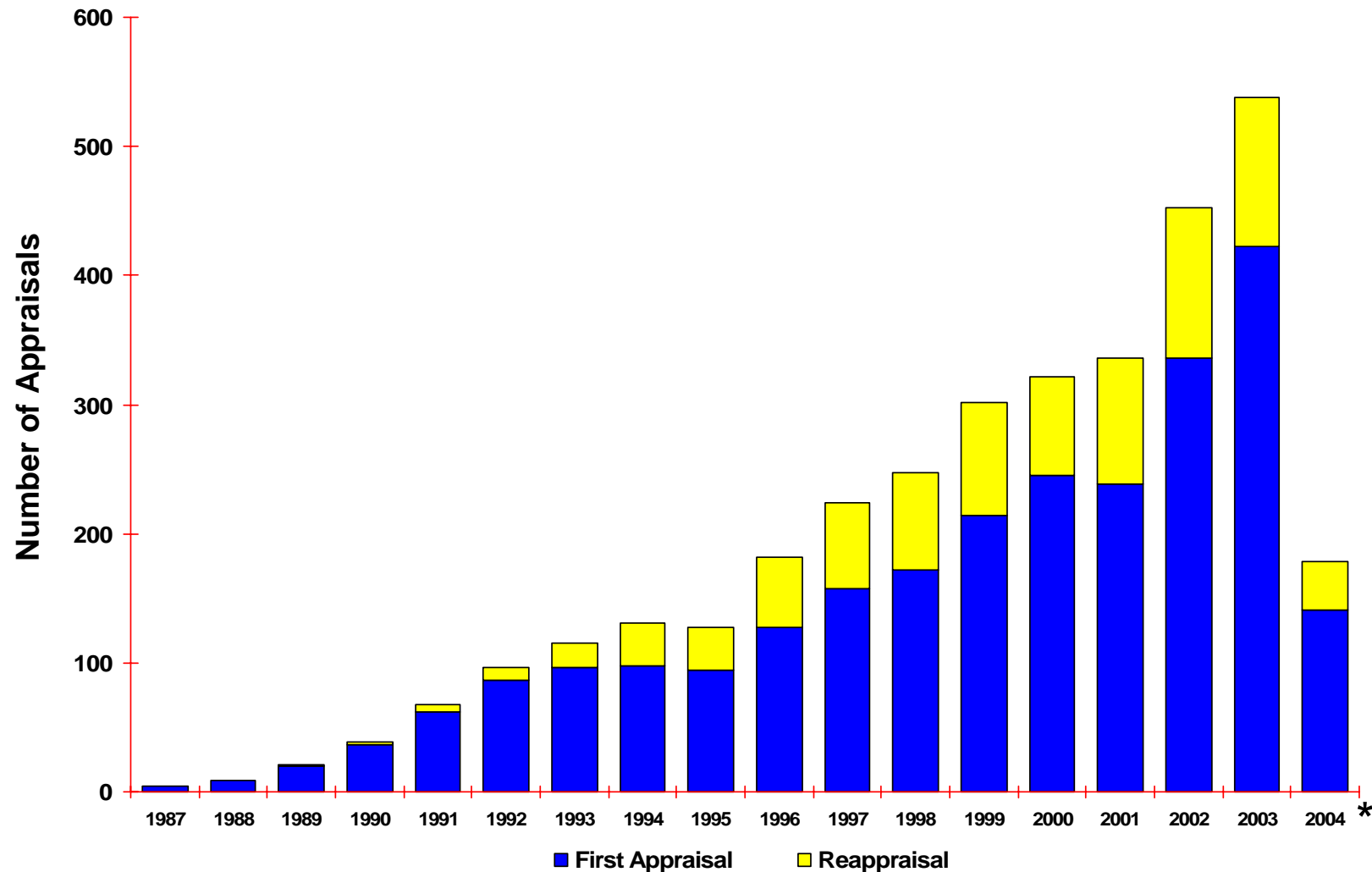
Country	Number of Appraisals	Maturity Level 1 Reported	Maturity Level 2 Reported	Maturity Level 3 Reported	Maturity Level 4 Reported	Maturity Level 5 Reported	Country	Number of Appraisals	Maturity Level 1 Reported	Maturity Level 2 Reported	Maturity Level 3 Reported	Maturity Level 4 Reported	Maturity Level 5 Reported
Argentina	10 or fewer						Mauritius	10 or fewer					
Australia	35	Yes	Yes	Yes	No	Yes	Mexico	23	Yes	Yes	Yes	Yes	Yes
Austria	10 or fewer						Netherlands	23	Yes	Yes	Yes	No	Yes
Barbados	10 or fewer						New Zealand	10 or fewer					
Belgium	11	Yes	Yes	Yes	No	No	Norway	10 or fewer					
Brazil	26	Yes	Yes	Yes	Yes	Yes	Pakistan	10 or fewer					
Canada	73	Yes	Yes	Yes	No	Yes	Peru	10 or fewer					
Chile	15	Yes	Yes	Yes	No	No	Philippines	10					
China	182	Yes	Yes	Yes	Yes	Yes	Poland	10 or fewer					
Colombia	10 or fewer						Portugal	10 or fewer					
Costa Rica	10 or fewer						Puerto Rico	10 or fewer					
Cyprus	10 or fewer						Russia	10 or fewer					
Czech Republic	10 or fewer						Saudi Arabia	10 or fewer					
Denmark	10 or fewer						Singapore	22	Yes	Yes	Yes	No	Yes
Egypt	10 or fewer						South Africa	10 or fewer					
Finland	10 or fewer						Spain	18	No	Yes	Yes	No	Yes
France	135	Yes	Yes	Yes	Yes	Yes	Sweden	10 or fewer					
Germany	56	Yes	Yes	Yes	No	No	Switzerland	10 or fewer					
Greece	10 or fewer						Taiwan	10 or fewer					
Hong Kong	10 or fewer						Thailand	14	Yes	Yes	Yes	No	No
Hungary	10 or fewer						Turkey	10 or fewer					
India	359	Yes	Yes	Yes	Yes	Yes	Ukraine	10 or fewer					
Ireland	11	Yes	Yes	Yes	No	No	United Arab Emirates	10 or fewer					
Israel	30	Yes	Yes	Yes	No	No	United Kingdom	135	Yes	Yes	Yes	No	No
Italy	32	Yes	Yes	Yes	No	Yes	United States	1896	Yes	Yes	Yes	Yes	Yes
Japan	131	Yes	Yes	Yes	Yes	Yes	Uruguay	10 or fewer					
Korea, Republic of	64	Yes	Yes	Yes	Yes	Yes	Venezuela	10 or fewer					
Latvia	10 or fewer						Vietnam	10 or fewer					
Malaysia	10 or fewer												

The organization maturity profile, page 8, 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.

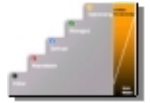




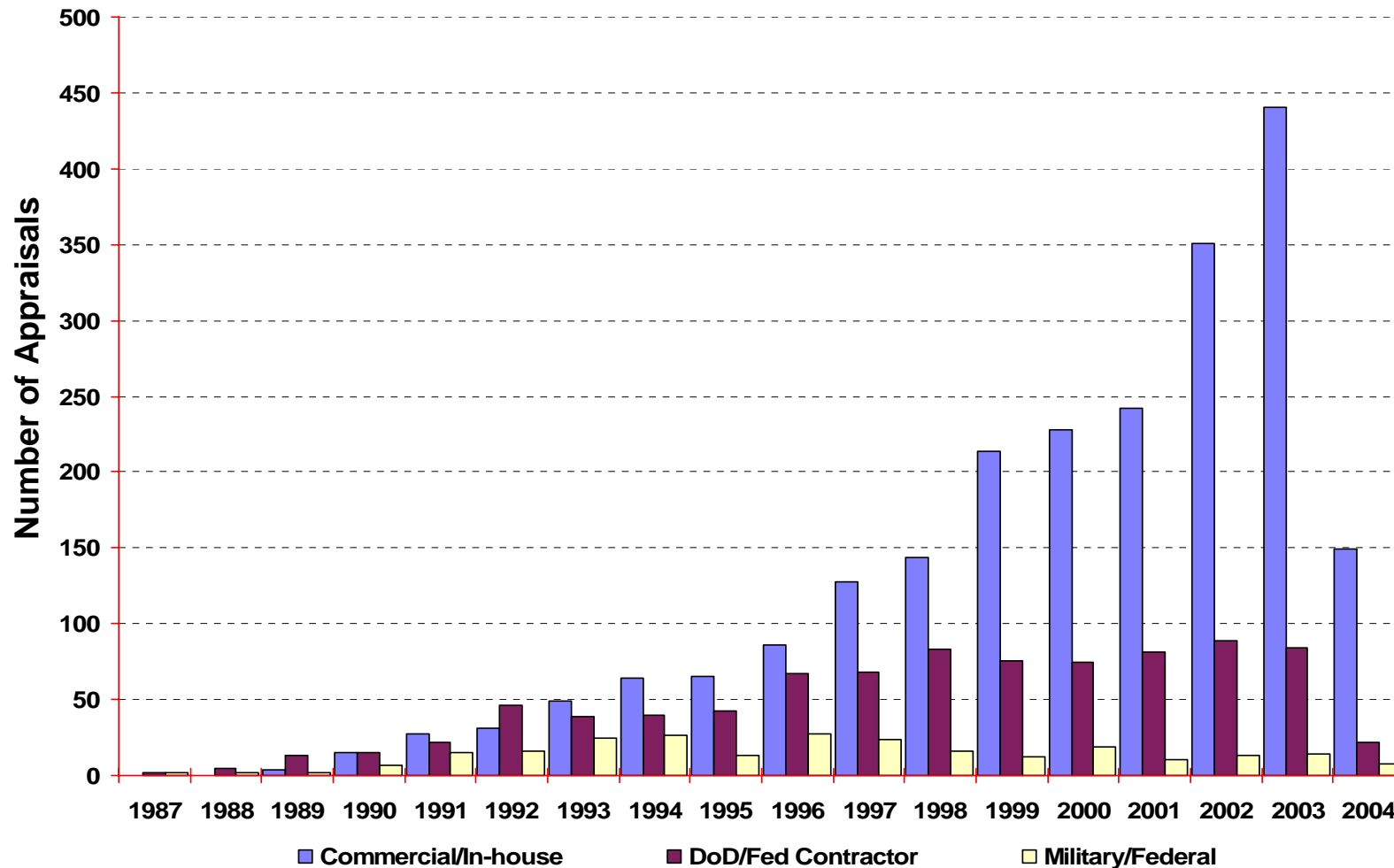
# Number of SW-CMM Appraisals Reported to the SEI by Year



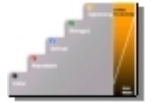
Based on **3,360** appraisals conducted through **June 2004** and reported to the SEI by **July 2004\***



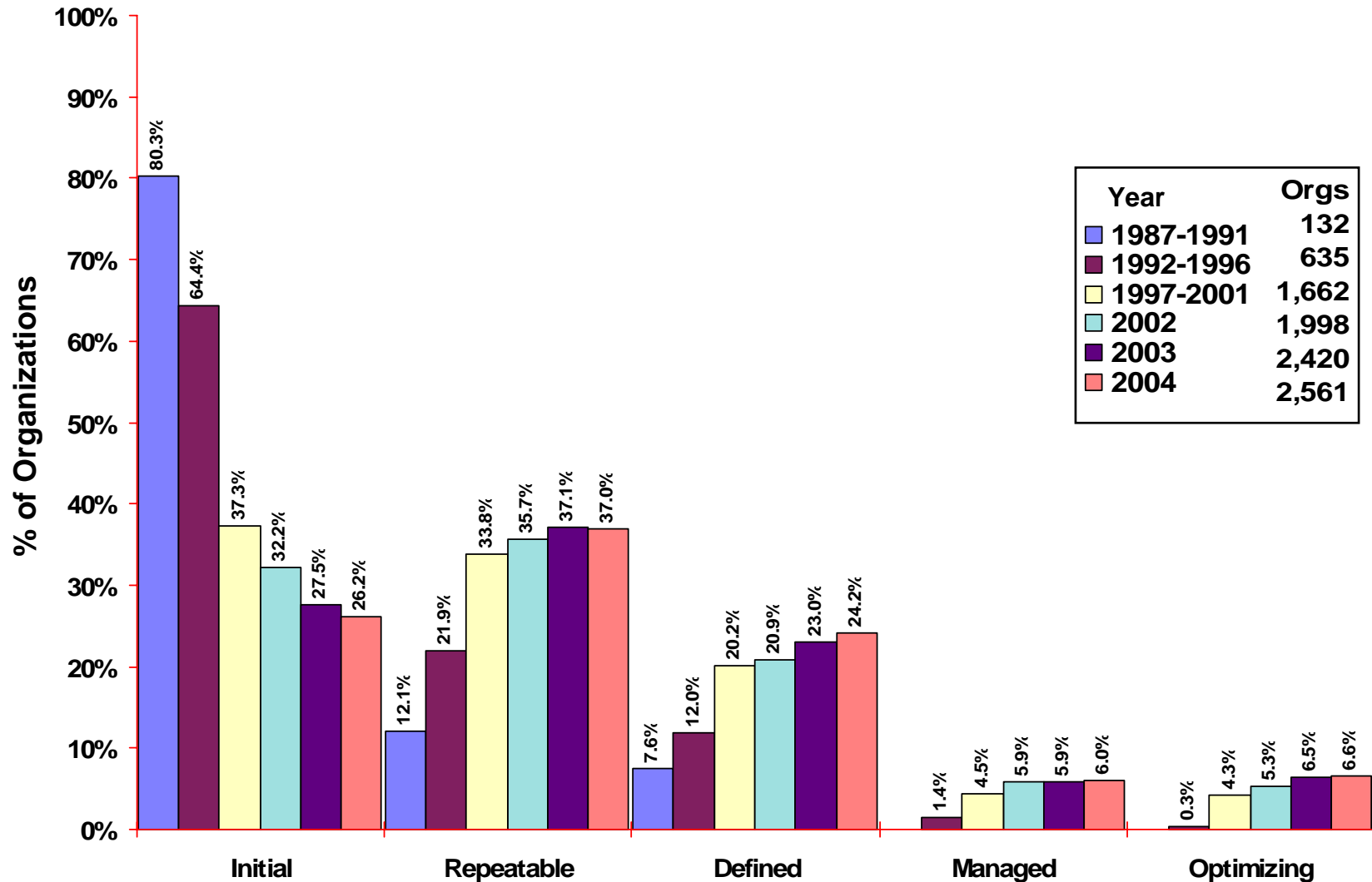
# Number of SW-CMM Appraisals Reported to the SEI by Organization Categories and Year



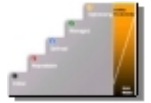
Based on **3,358** appraisals reporting organization categories



# 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 6.

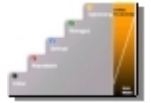


## Section 3: Organizational Trends

**Appraisals conducted through June 2004 and reported to the SEI by July 2004**

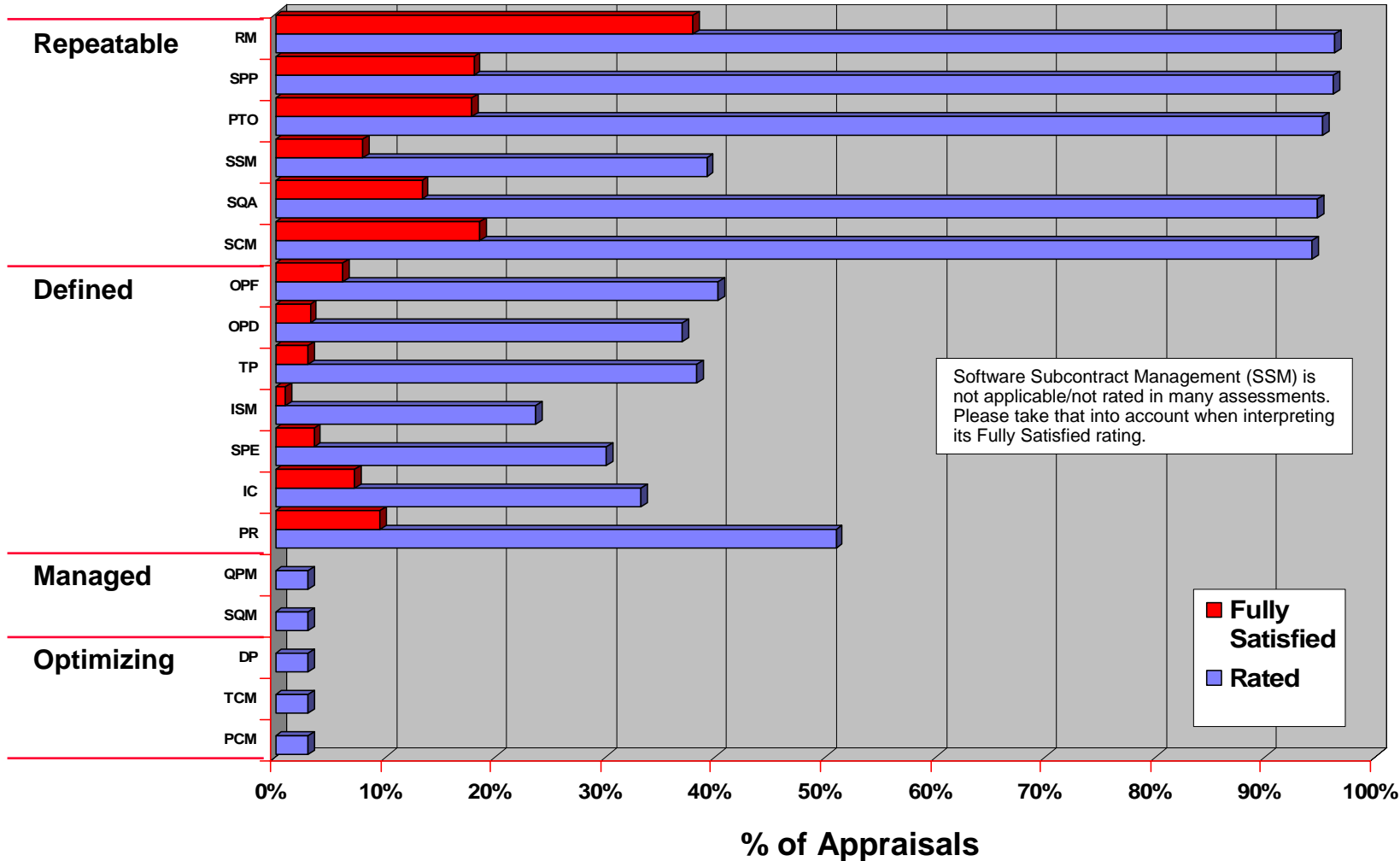
- **1,748 Key Process Area (KPA) profiles**
  - **satisfaction of KPAs by maturity level for organizations appraised at levels 1 and 2**
- **630 reappraised organizations**
  - **accounting for 1,439 appraisals**
  - **although some organizations conducted multiple reappraisals, only the first and latest appraisals were used in creating the charts on pages 23 & 24**

**Please refer to: Terms Used in this Report on page 29**

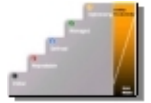


# Key Process Area Profiles - 1

## Organizations Appraised at Level 1

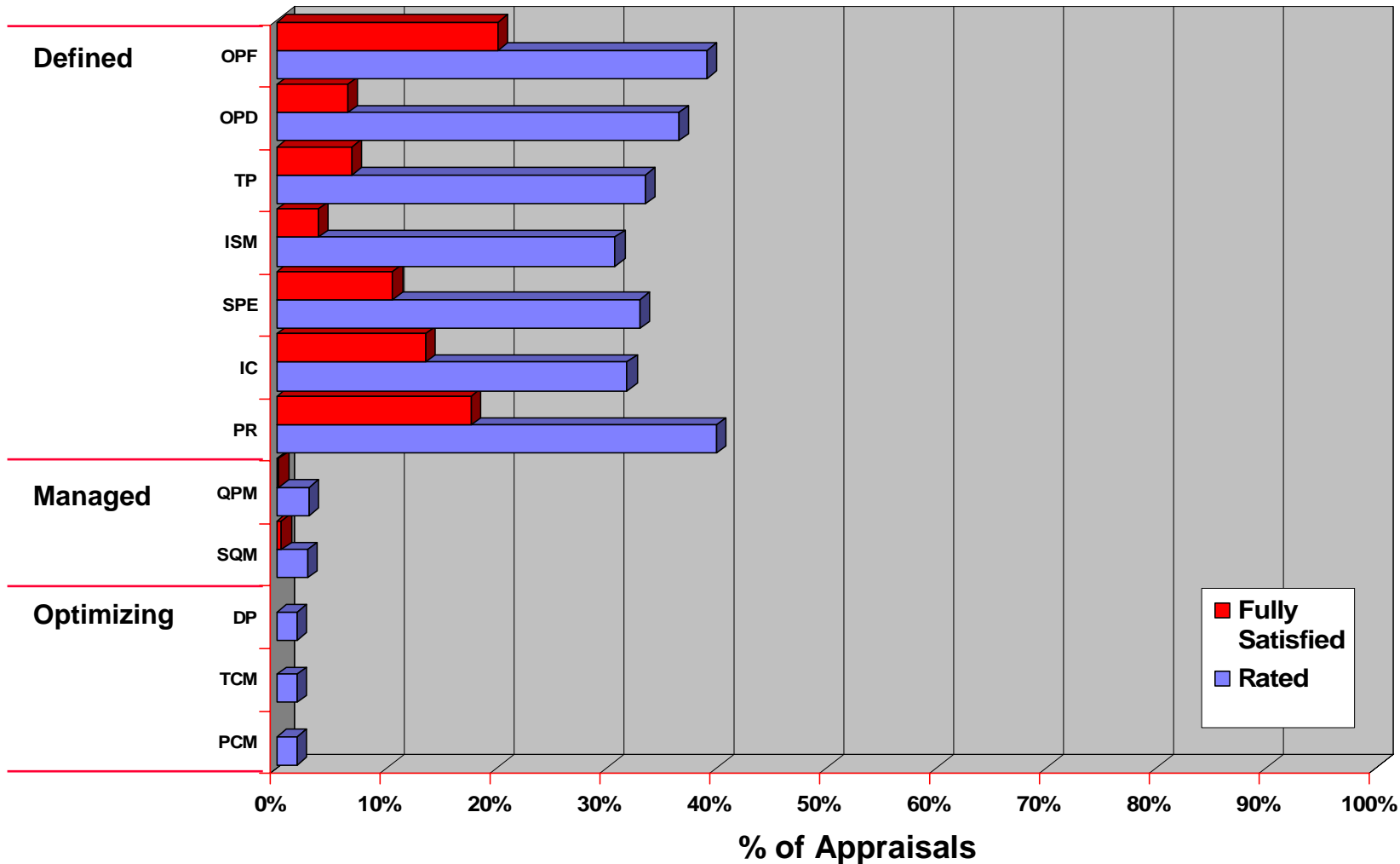


Based on 571 CBA IPI and SCAMPI with SW-CMM appraisals reporting a maturity level rating

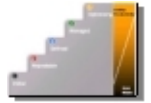


# Key Process Area Profiles - 2

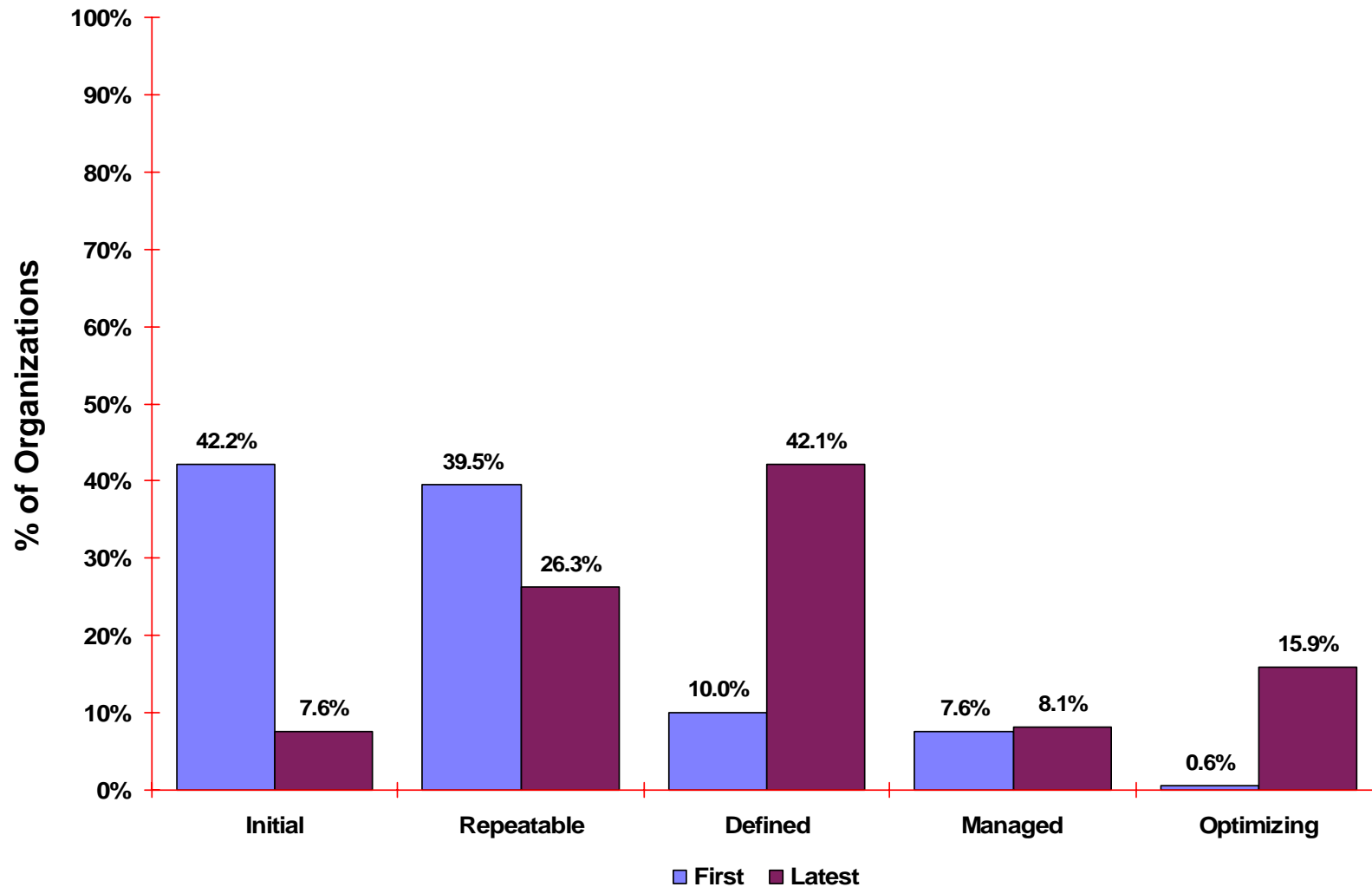
## Organizations Appraised at Level 2



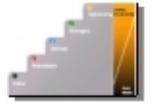
Based on 1177 CBA IPI and SCAMPI With SW-CMM appraisals reporting a maturity level rating



# Maturity Level of First and Latest Appraisal

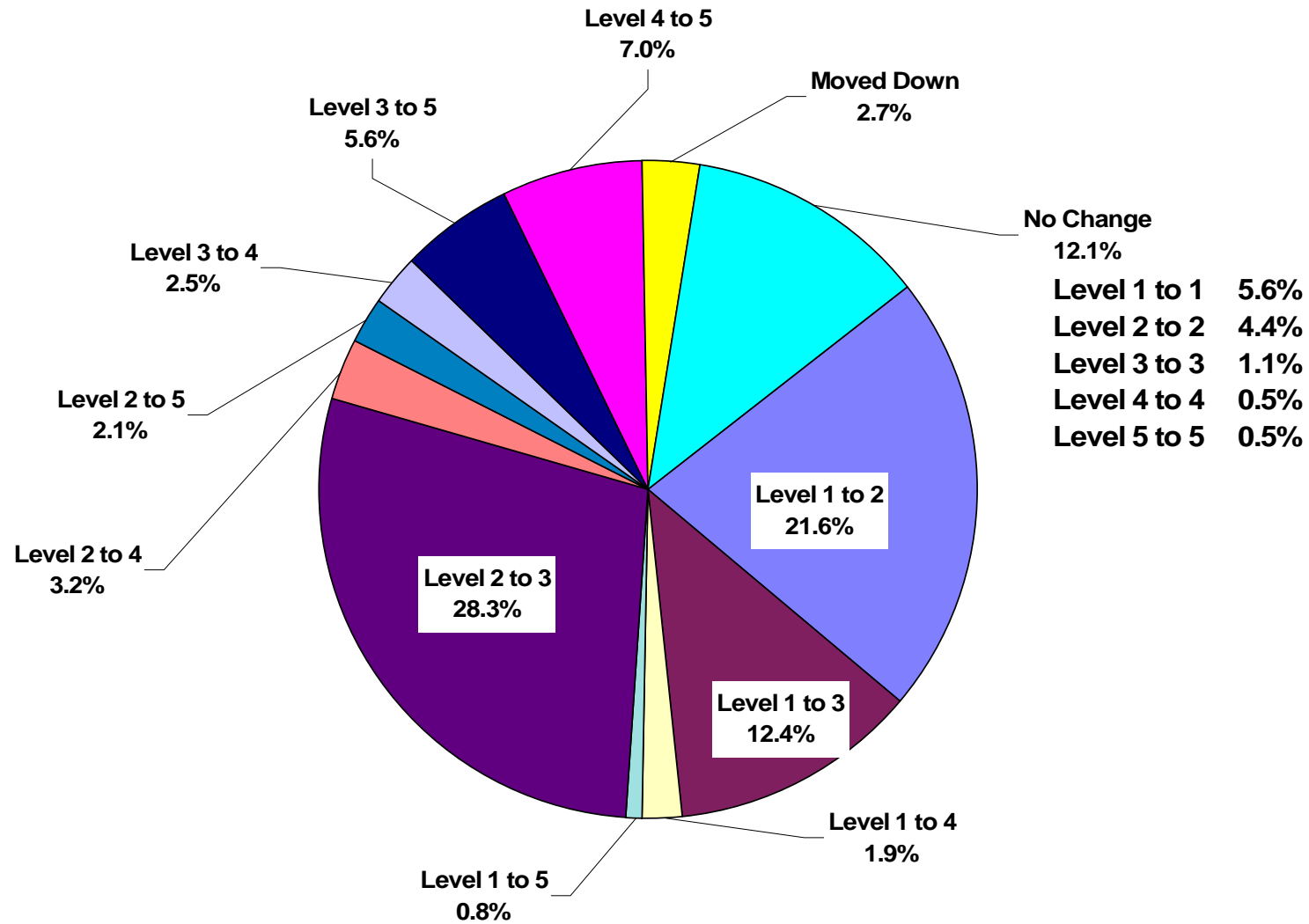


Based on 630 reappraised organizations using their first and latest appraisal



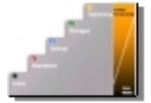
# Reappraisals

## Change in Maturity Level

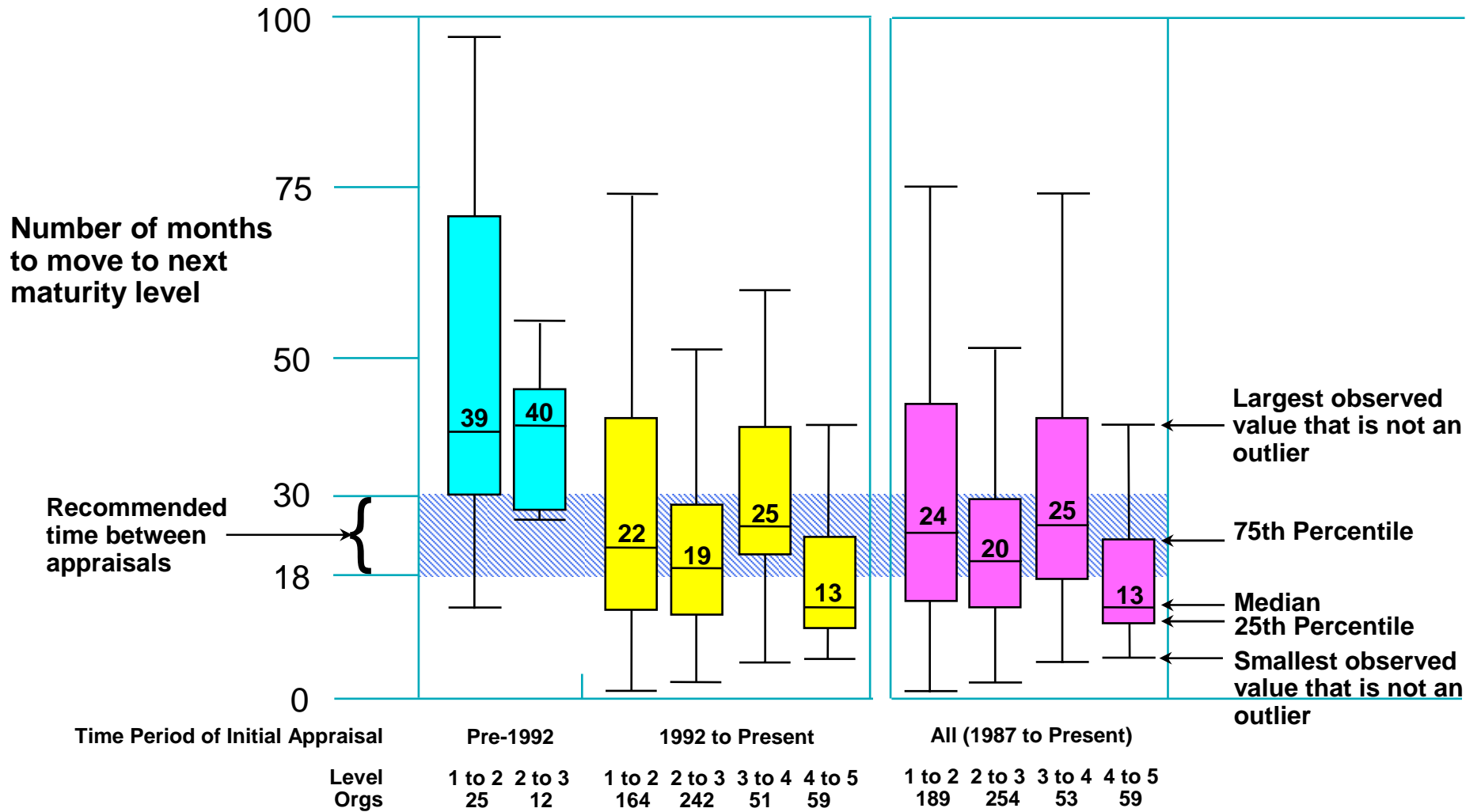


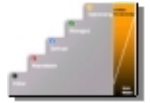
Based on 630 reappraised organizations using their first and latest appraisal





# Time to Move Up





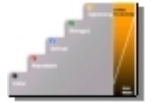
# Summary of Current Status

**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**

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



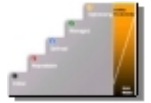
# Summary of Organizational Trends - 1

**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**

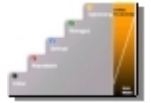


## Summary of Organizational Trends (continued) - 2

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

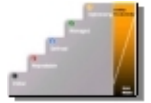
- **maturity level 1 to 2 is 22 months**
- **maturity level 2 to 3 is 19 months**
- **maturity level 3 to 4 is 25 months**
- **maturity level 4 to 5 is 13 months**

**Note: The median time to move from maturity level 2 to 3 dropped from 21 month to 19 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.



# Report your Appraisal Results to the SEI

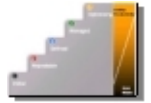
**The briefing is only possible due to the cooperation of organizations and individuals sending in their appraisal results to the SEI**

**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:

SEI Customer Relations (412) 268-5800

SEI FAX number (412) 268-5758

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