



Carnegie Mellon University
Software Engineering Institute

Process Maturity Profile

Software CMM® 2003 Year End Update

March 2004

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

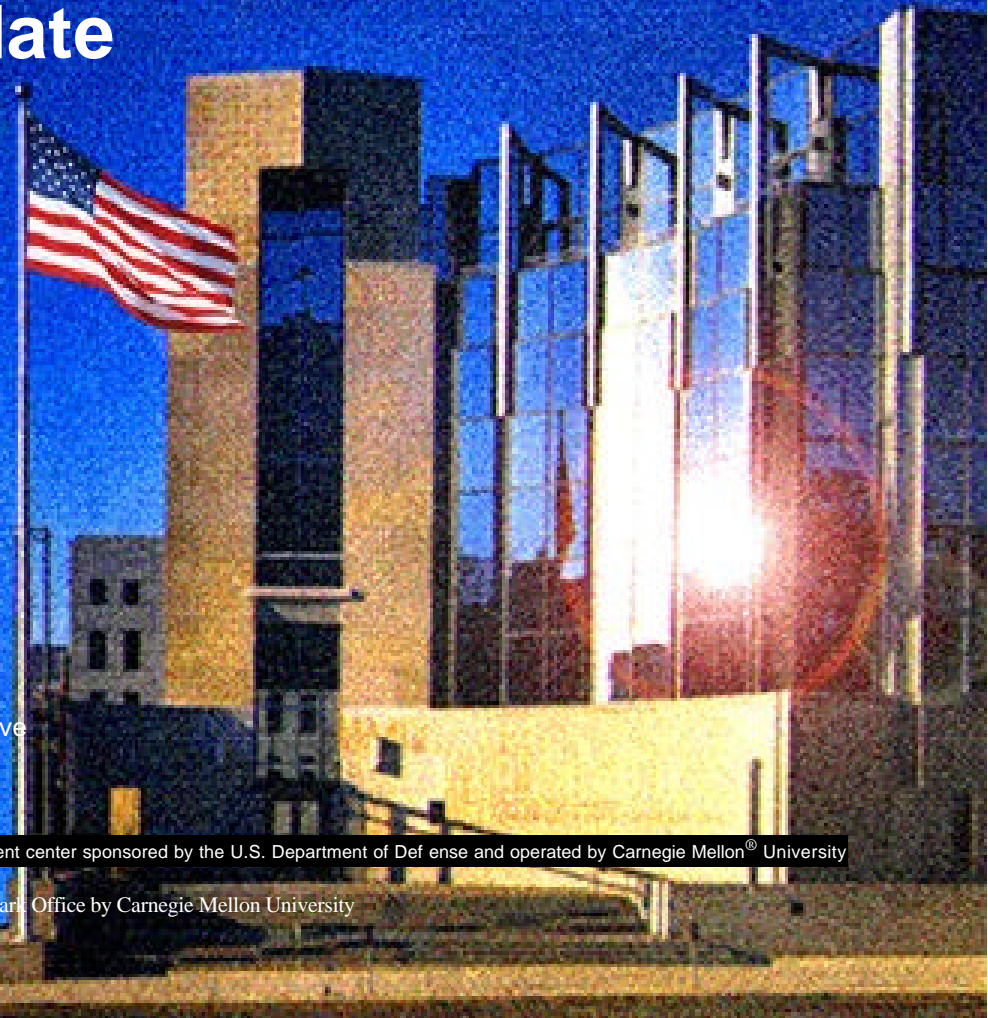
Our many thanks for their continuing cooperation with our data collection and analysis efforts.

Software Engineering Measurement and Analysis Initiative

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Outline

Introduction

Current Status

Community Trends

Organizational Trends

Summary

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 and authorizes lead appraisers 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[®]-Based Appraisals for Internal Process Improvement (CBA IPIs) and**
- **Software Process Assessments (SPAs) and**
- **Standard CMMI[®] Appraisal Method for Process Improvement (SCAMPI), v1.1**

Please visit:

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 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



Section 1: Current Status

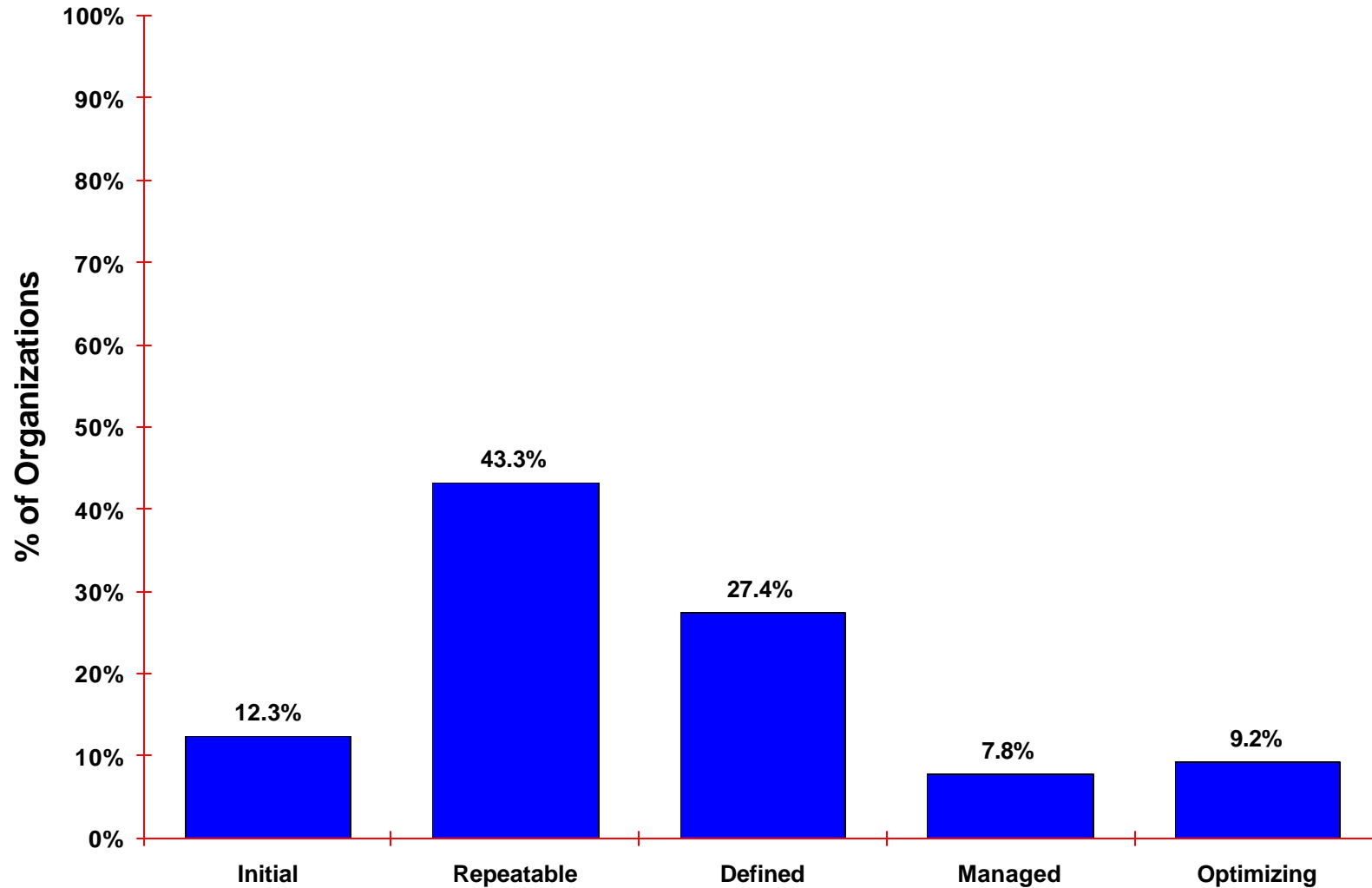
**Appraisals conducted from 1999 through December 2003
and reported to the SEI by January 2004**

- **1,593 organizations**
- **686 participating companies**
- **8,185 projects**
- **54.7% Non-USA organizations**

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



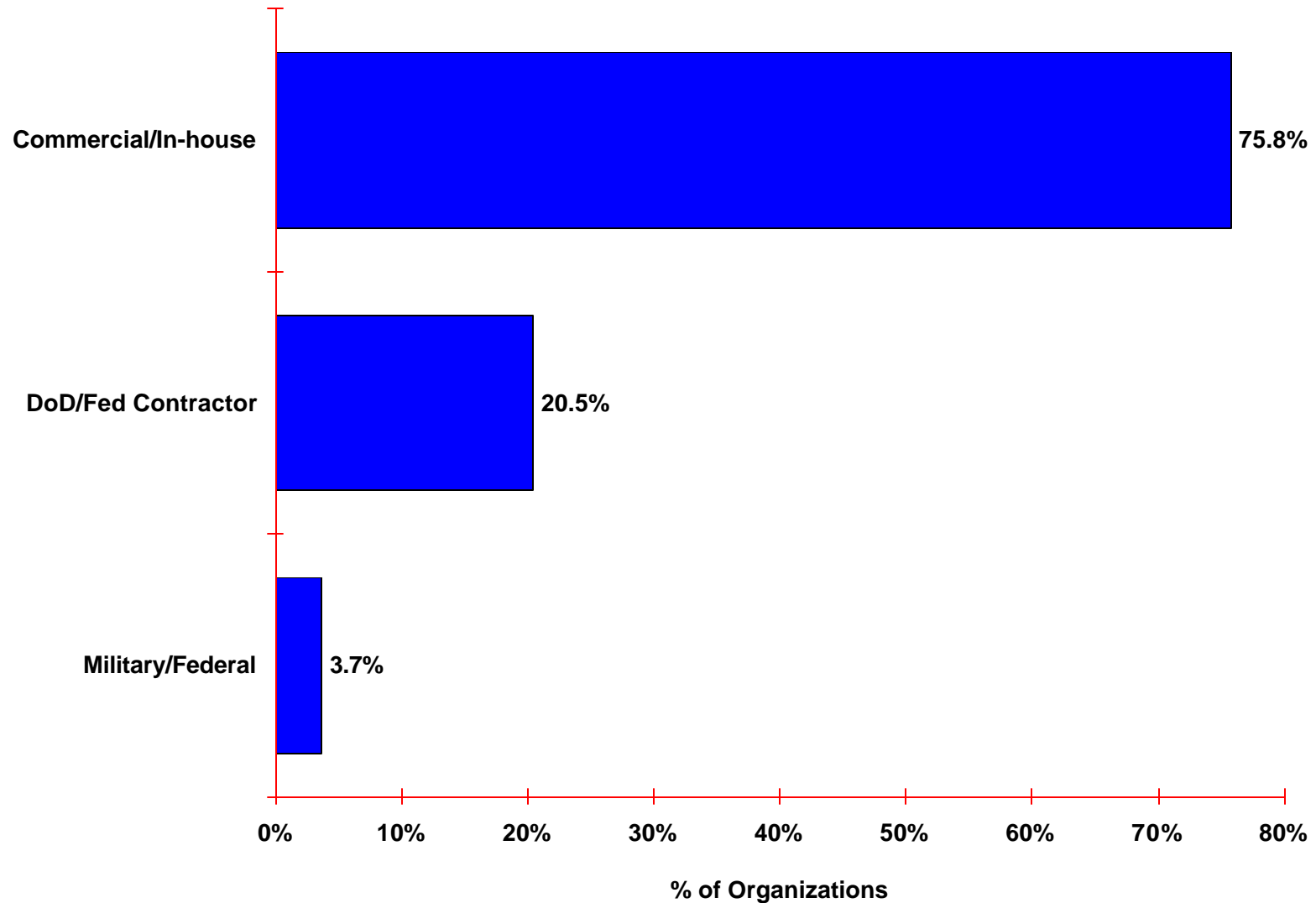
Maturity Profile by All Reporting Organizations



Based on most recent appraisal, since 1999, of 1,593 organizations reporting a maturity level rating



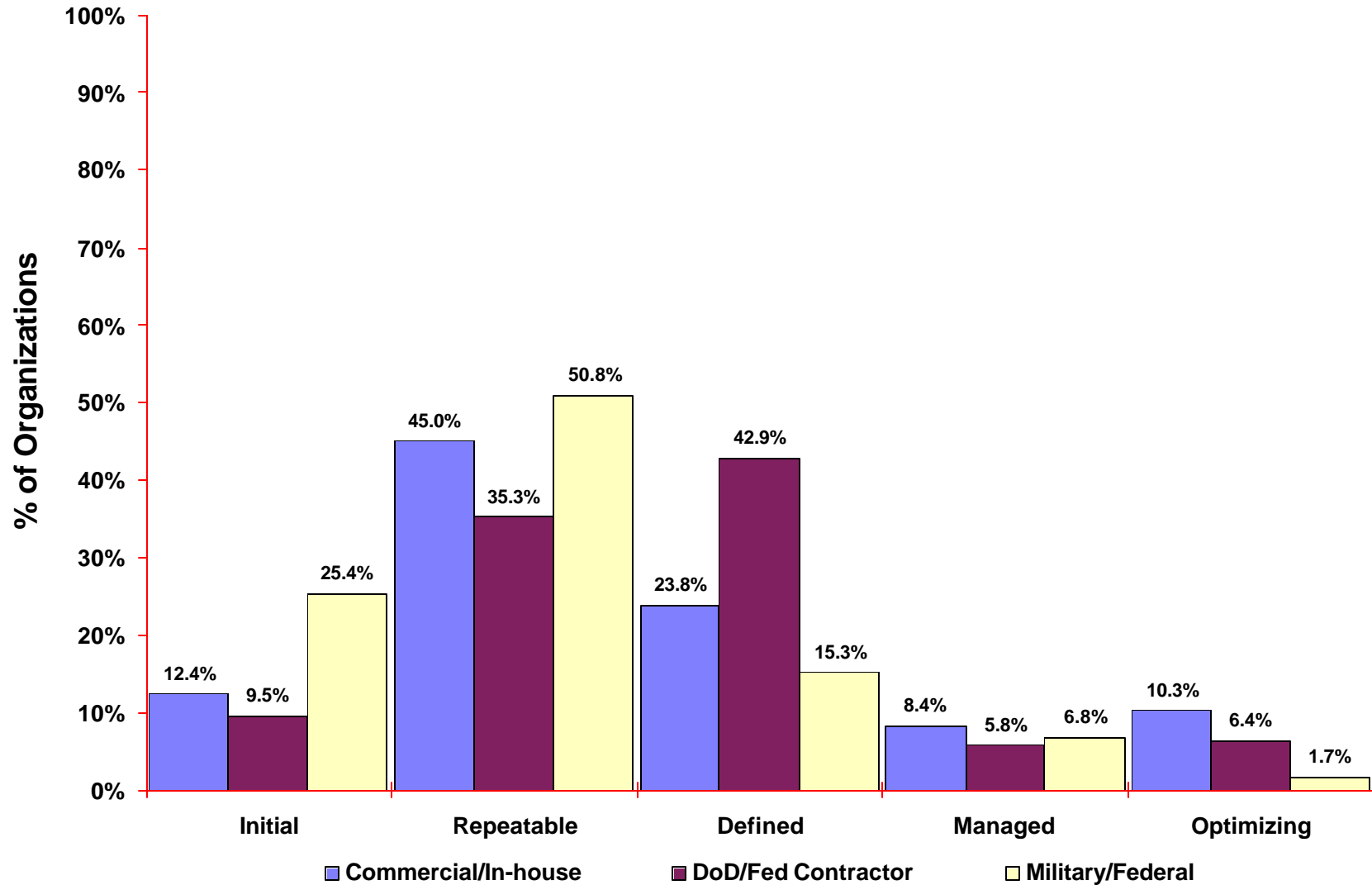
Reporting Organization Categories



Based on **1,593** organizations reporting organization categories



Maturity Profile by Reporting Organization Categories

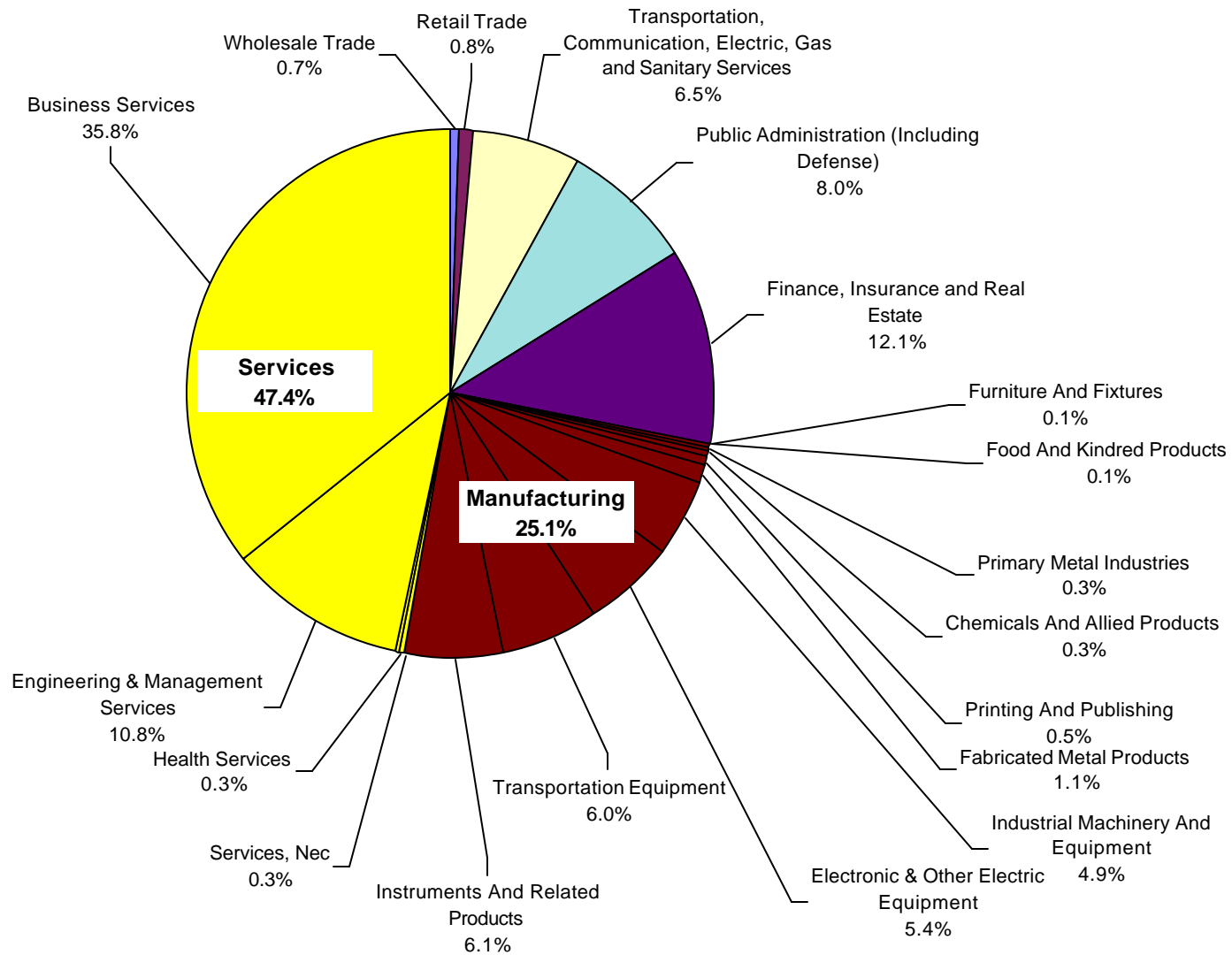


Based on most recent appraisal, since 1999, of 1,593 organizations reporting categories and a maturity level rating



Organization Type

Based on Primary Standard Industrial Classification (SIC) Code

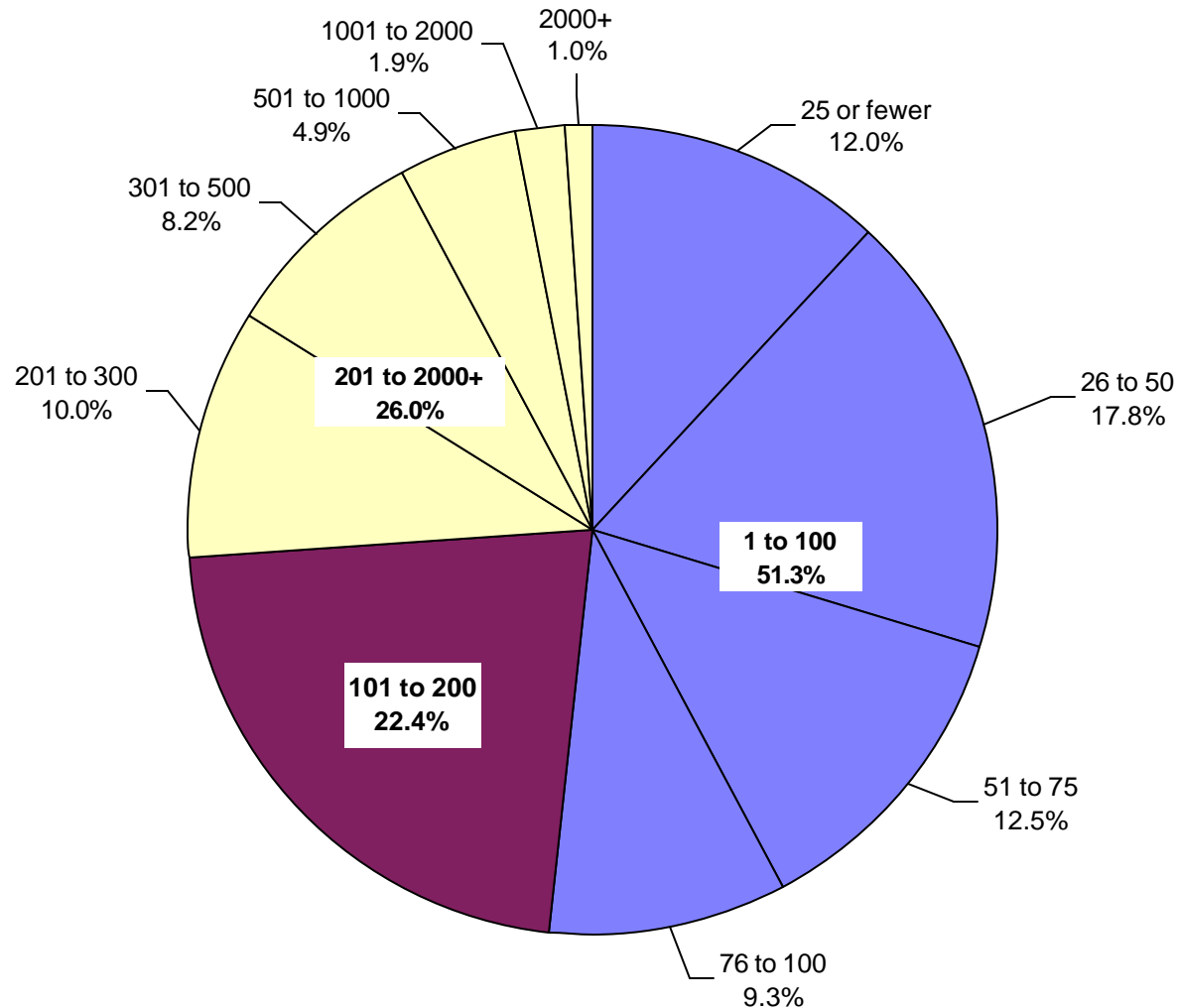


Based on 738 organizations reporting SIC code. For more information visit: <http://www.osha.gov/oshstats/sicser.html>



Organization Size

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

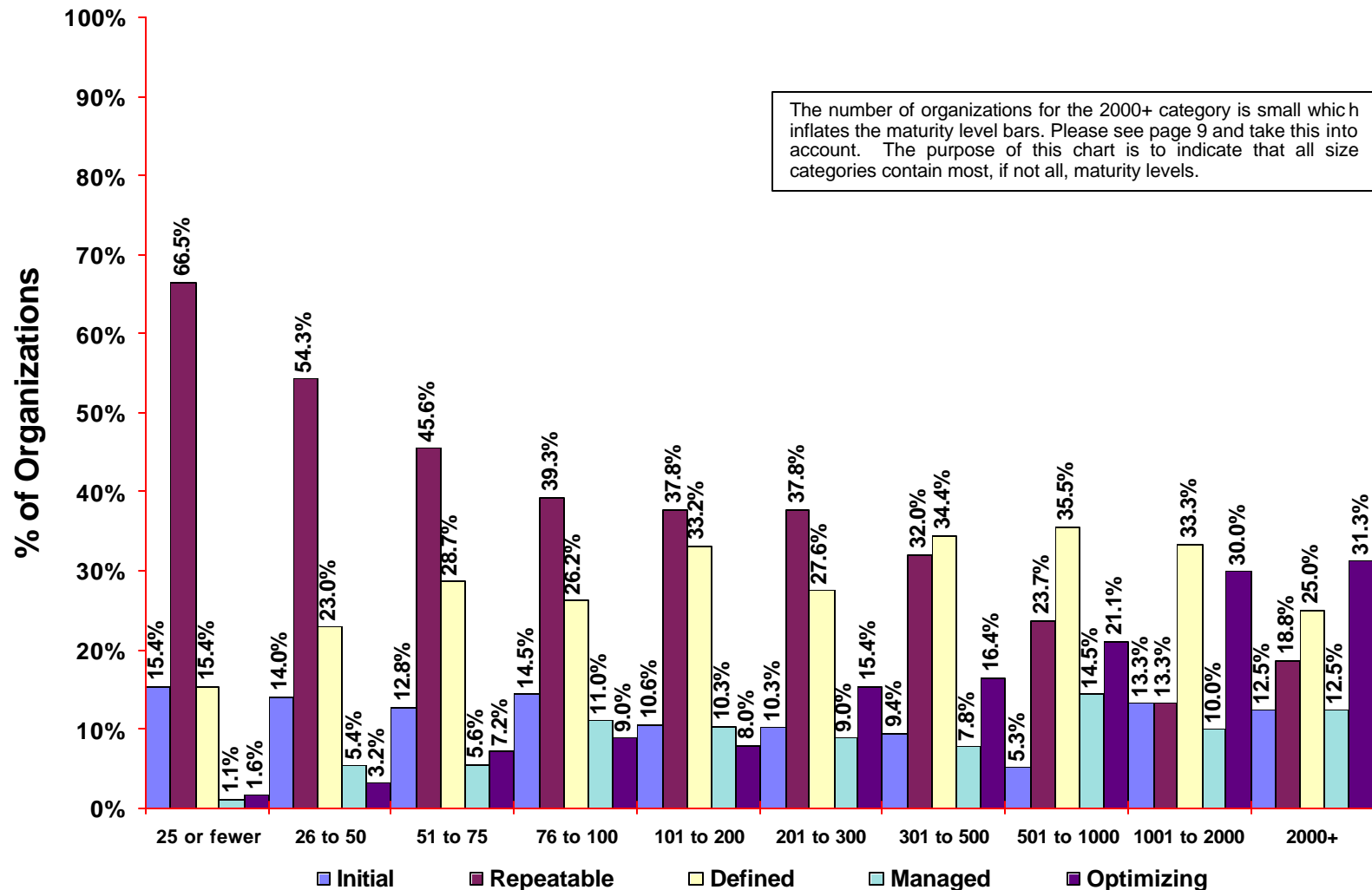


Based on **1,561** organizations reporting size data



Maturity Profile by Organization Size

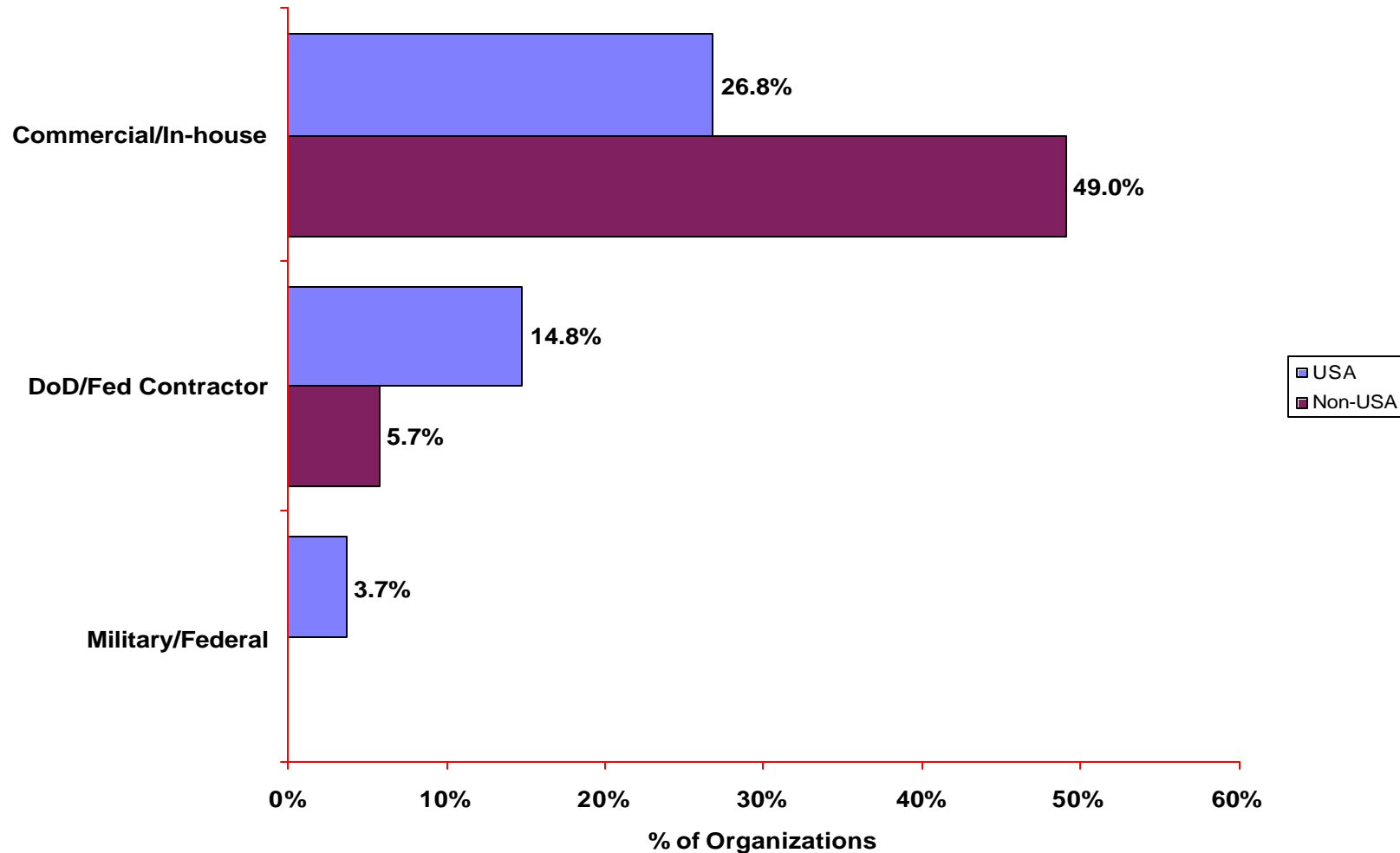
Based on the total number of employees within the area of the organization that was appraised



Based on 1,561 organizations reporting size data and a maturity level rating



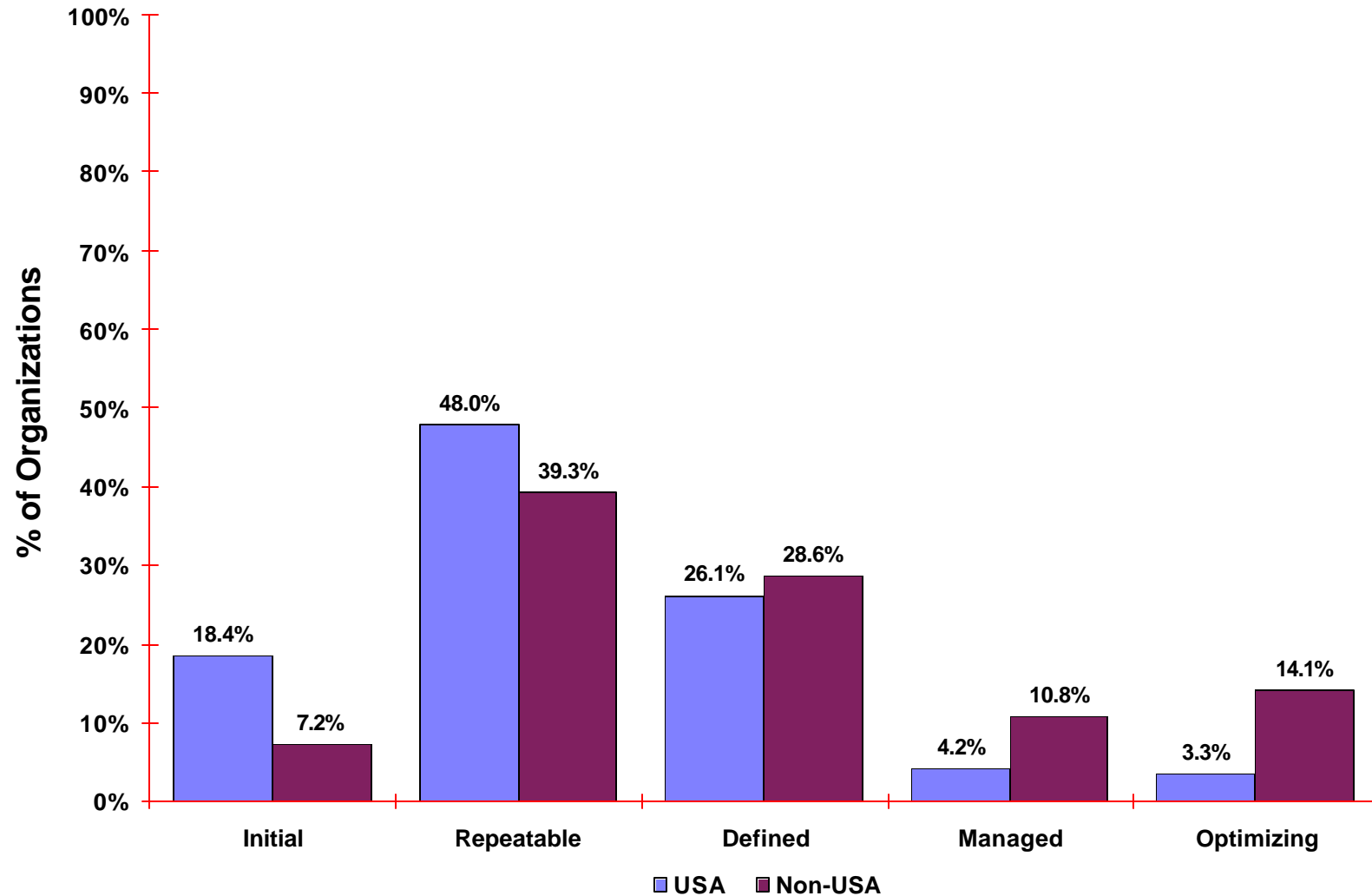
USA and Non-USA Reporting Organization Categories



Based on 721 U.S. organizations and 872 Non-USA organizations reporting organization categories



Maturity Profile by All Reporting USA and Non-USA Organizations



Based on 721 U.S. organizations and 872 Non-USA organizations reporting categories and a maturity level rating



Section 2: Community Trends

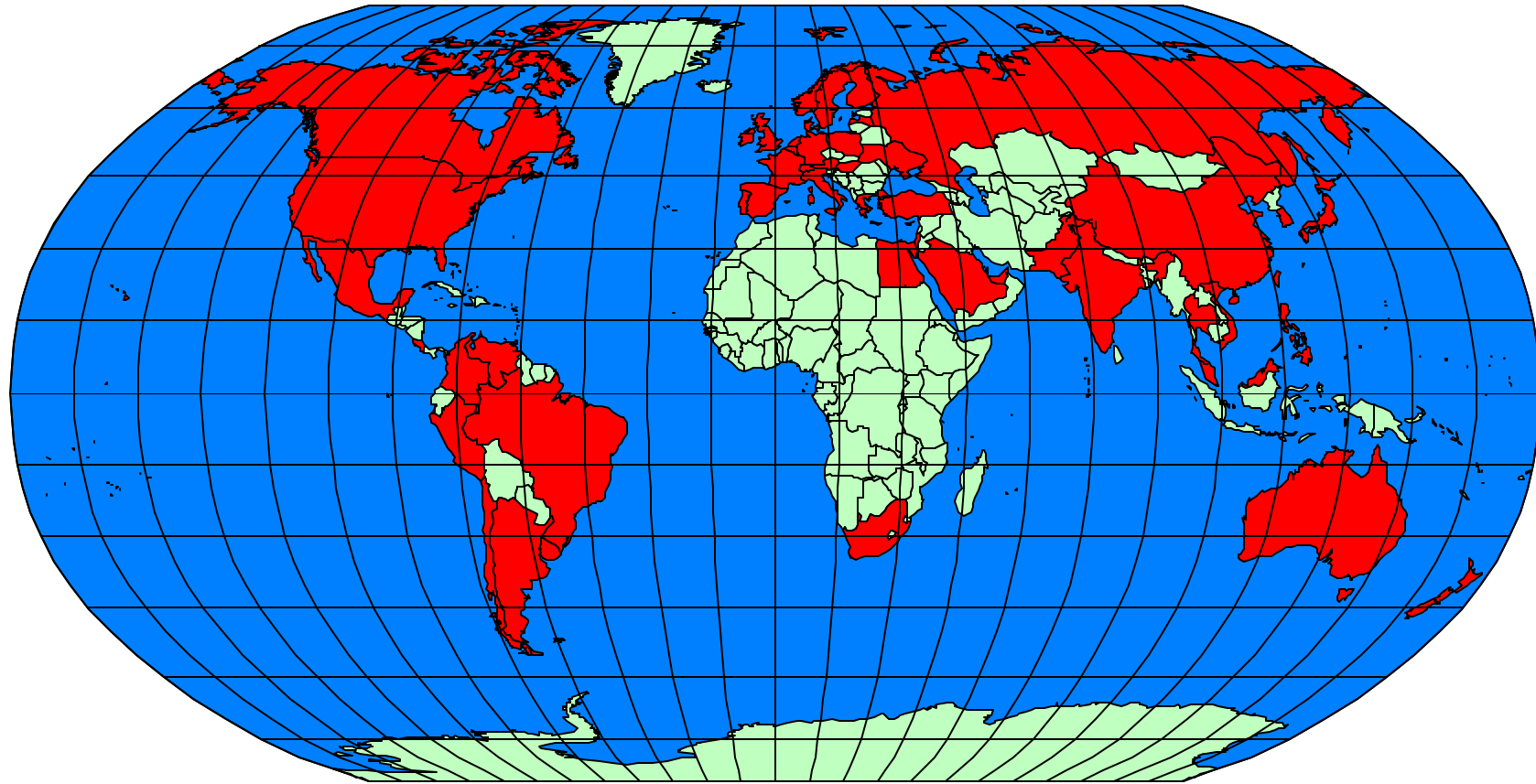
CBA IPIs , SPAs and SCAMPI v1.1 using the SW-CMM conducted since 1987 through December 2003 and reported to the SEI by January 2004

- **3,157 appraisals**
 - 2,663 CBA IPIs**
 - 484 SPAs**
 - 10 SCAMPI**
- **2,401 organizations**
- **829 participating companies**
- **598 reappraised organizations**
- **13,266 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 | Denmark | Egypt | Finland | France |
| Germany | Greece | Hong Kong | Hungary | India | Ireland | Israel | Italy |
| Japan | Korea, Republic of | Latvia | 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 |
| Ukraine | United Arab Emirates | United Kingdom | United States | Uruguay | Venezuela | Viet nam | |



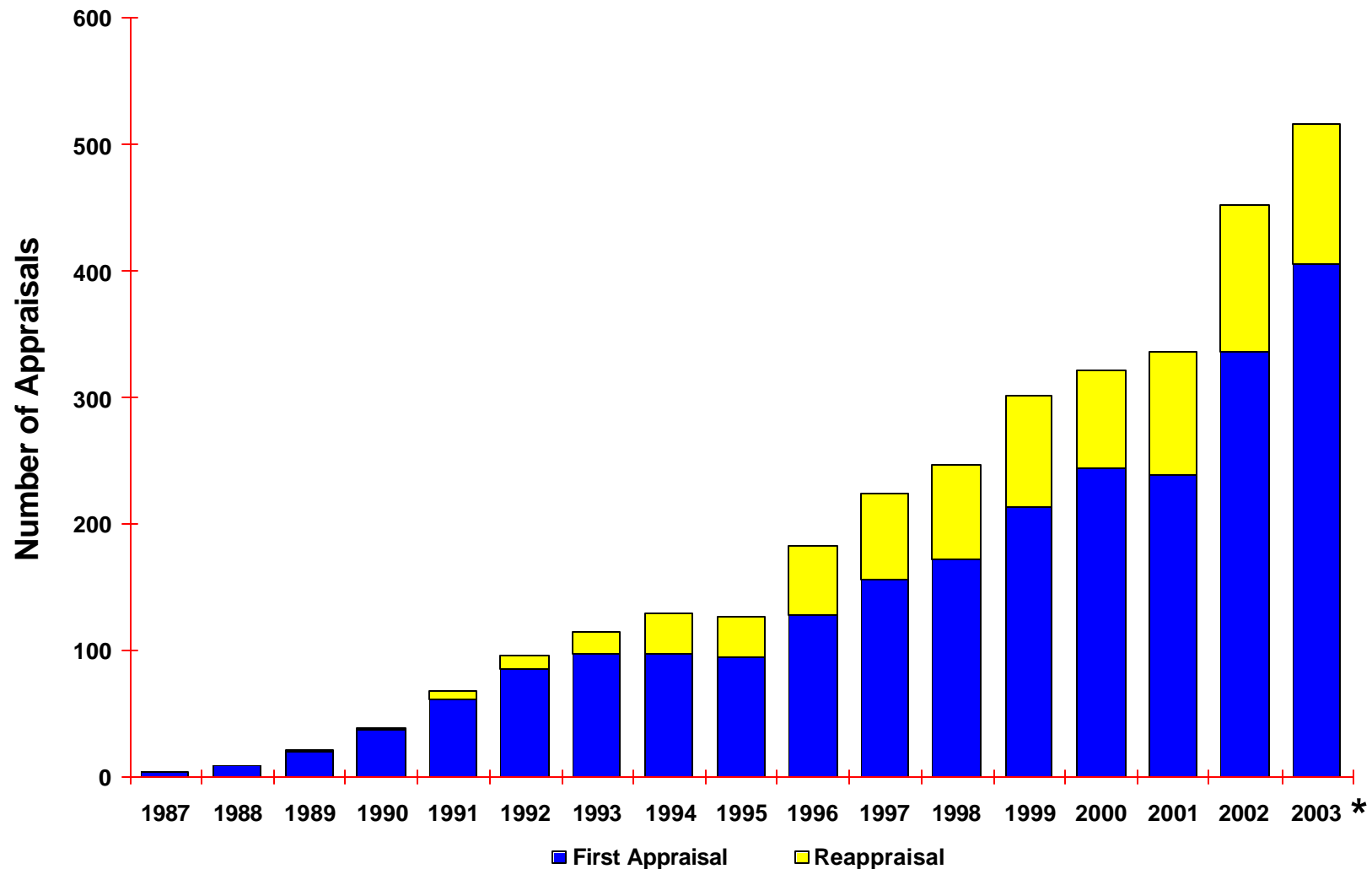
Number of Appraisals and Maturity Levels Reported to the SEI by Country

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						Malaysia	10 or fewer					
Australia	34	Yes	Yes	Yes	No	Yes	Mexico	22	Yes	Yes	Yes	Yes	Yes
Austria	10 or fewer						Netherlands	21	Yes	Yes	Yes	No	Yes
Barbados	10 or fewer						New Zealand	10 or fewer					
Belgium	10						Norway	10 or fewer					
Brazil	23	Yes	Yes	Yes	Yes	No	Pakistan	10 or fewer					
Canada	67	Yes	Yes	Yes	No	Yes	Peru	10 or fewer					
Chile	12	Yes	Yes	Yes	No	No	Philippines	10					
China	152	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					
Denmark	10 or fewer						Saudi Arabia	10 or fewer					
Egypt	10 or fewer						Singapore	18	Yes	Yes	Yes	No	Yes
Finland	10 or fewer						South Africa	10 or fewer					
France	124	Yes	Yes	Yes	Yes	Yes	Spain	13	No	Yes	Yes	No	Yes
Germany	49	Yes	Yes	Yes	No	No	Sweden	10 or fewer					
Greece	10 or fewer						Switzerland	10 or fewer					
Hong Kong	10 or fewer						Taiwan	10 or fewer					
Hungary	10 or fewer						Thailand	13	Yes	Yes	Yes	No	No
India	330	Yes	Yes	Yes	Yes	Yes	Turkey	10 or fewer					
Ireland	10 or fewer						Ukraine	10 or fewer					
Israel	30	Yes	Yes	Yes	No	No	United Arab Emirates	10 or fewer					
Italy	30	Yes	Yes	Yes	No	Yes	United Kingdom	133	Yes	Yes	Yes	No	No
Japan	113	Yes	Yes	Yes	Yes	Yes	United States	1838	Yes	Yes	Yes	Yes	Yes
Korea, Republic of	60	Yes	Yes	Yes	Yes	Yes	Uruguay	10 or fewer					
Latvia	10 or fewer						Venezuela	10 or fewer					
							Vietnam	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 is free.



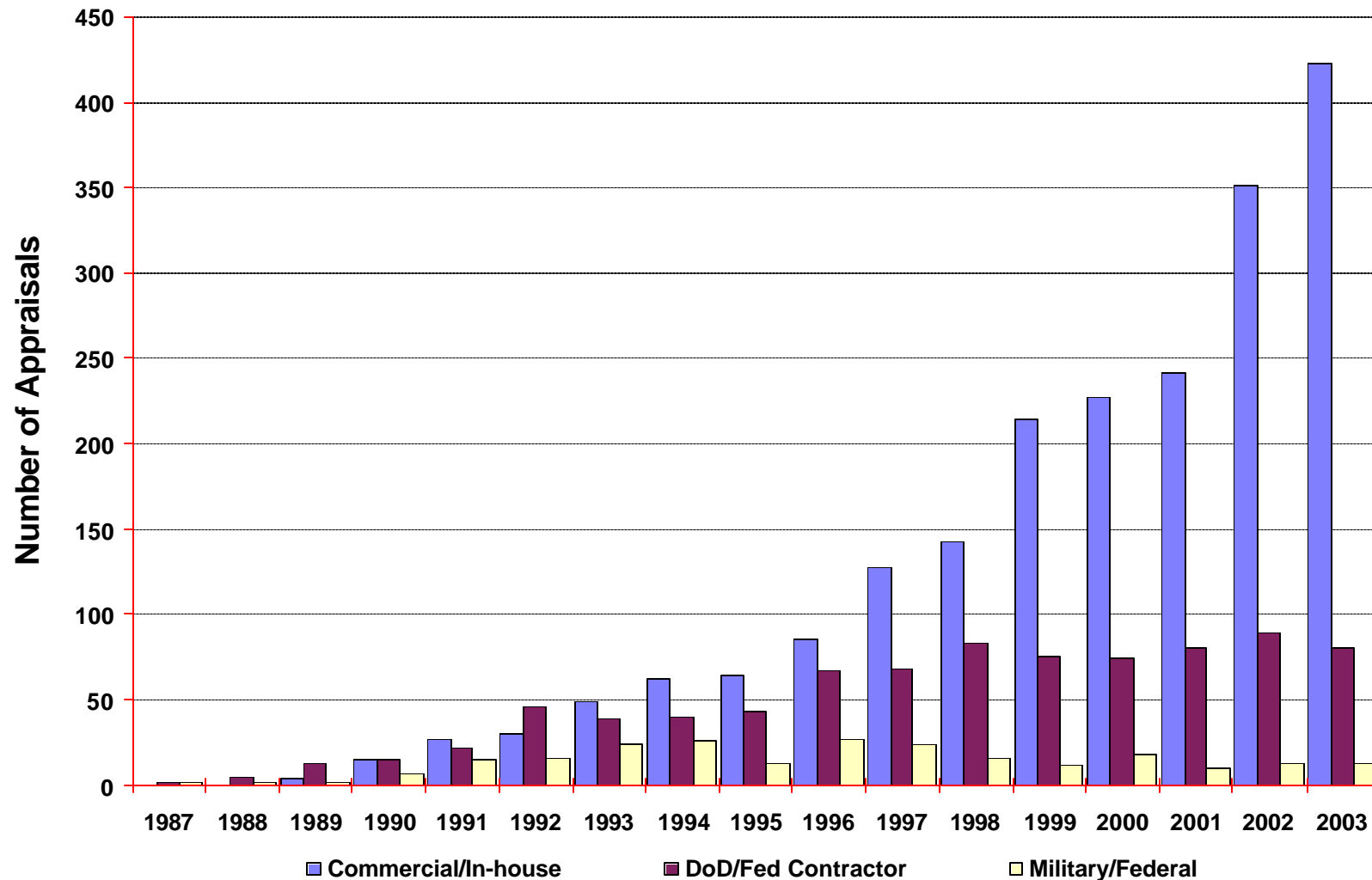
Number of Appraisals Reported to the SEI by Year



Based on 3,157 appraisals conducted through Dec. 2003 and reported to the SEI by Jan 2004 *



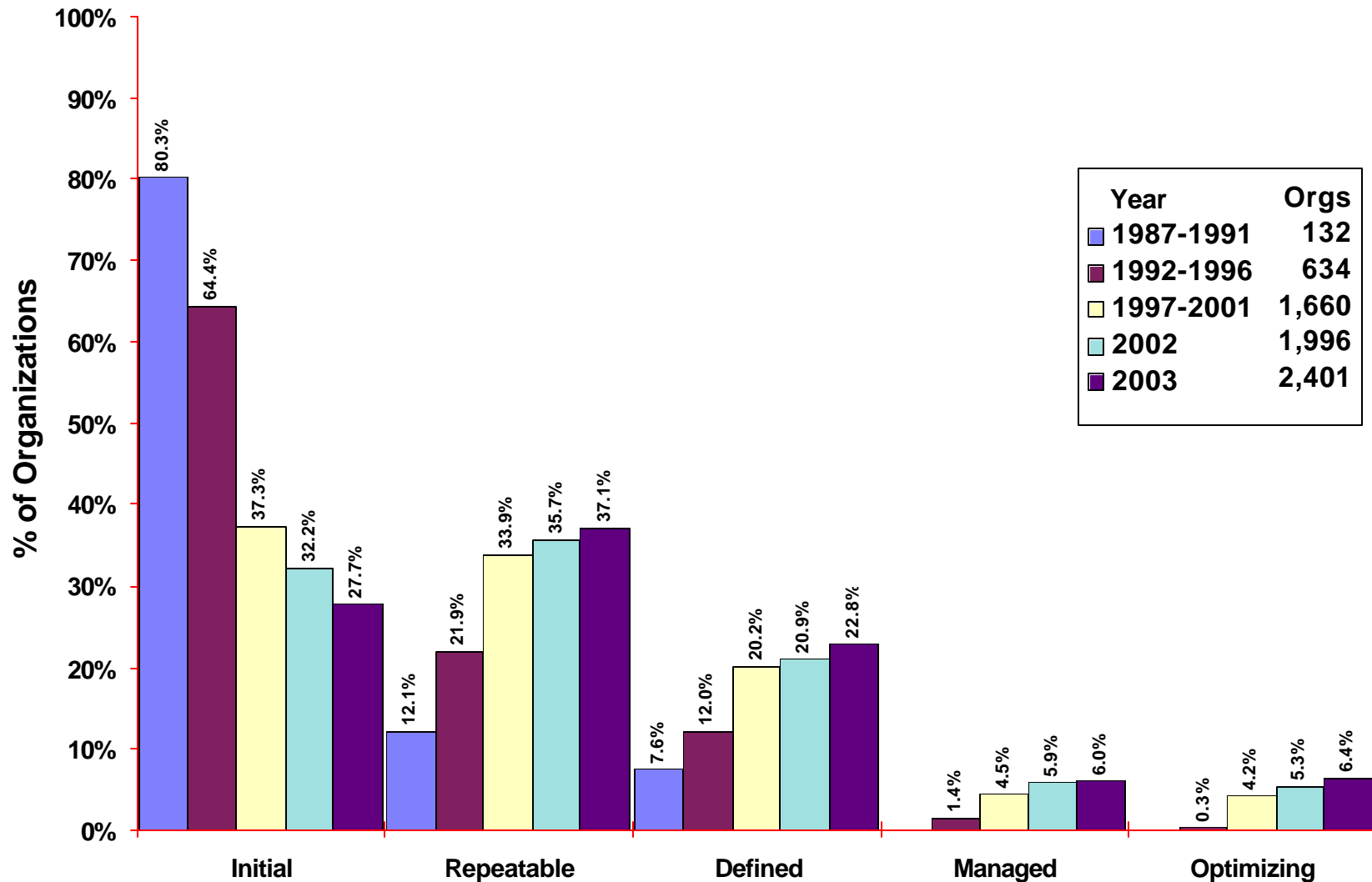
Number of Appraisals Reported to the SEI by Organization Categories and Year



Based on 3,155 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 8.



Section 3: Organizational Trends

Appraisals conducted through December 2003 and reported to the SEI by January 2004

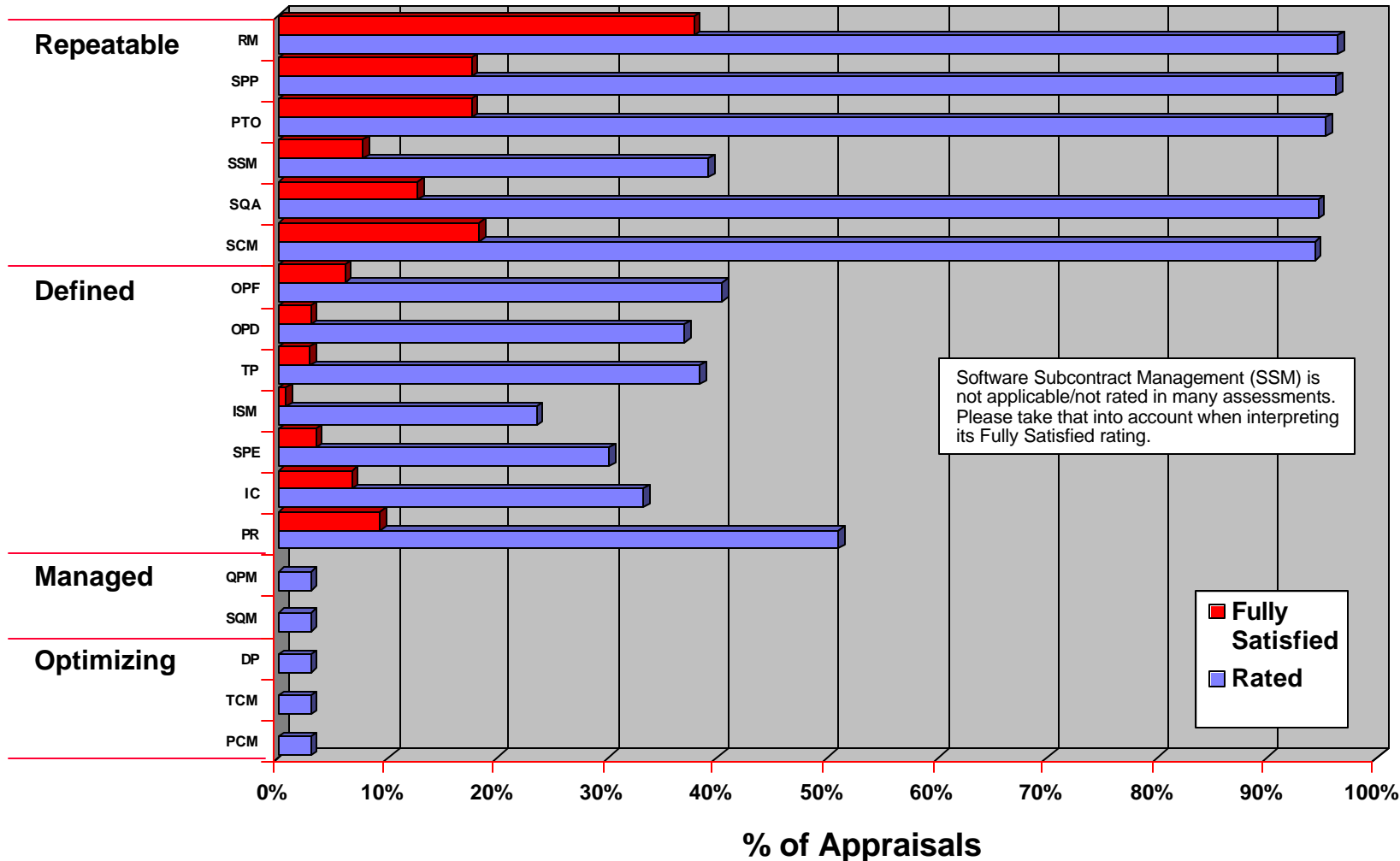
- **1,656 Key Process Area (KPA) profiles**
 - **satisfaction of KPAs by maturity level for organizations appraised at levels 1 and 2**
- **598 reappraised organizations**
 - **accounting for 1,364 appraisals**
 - **although some organizations conducted multiple reappraisals, only the first and latest 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

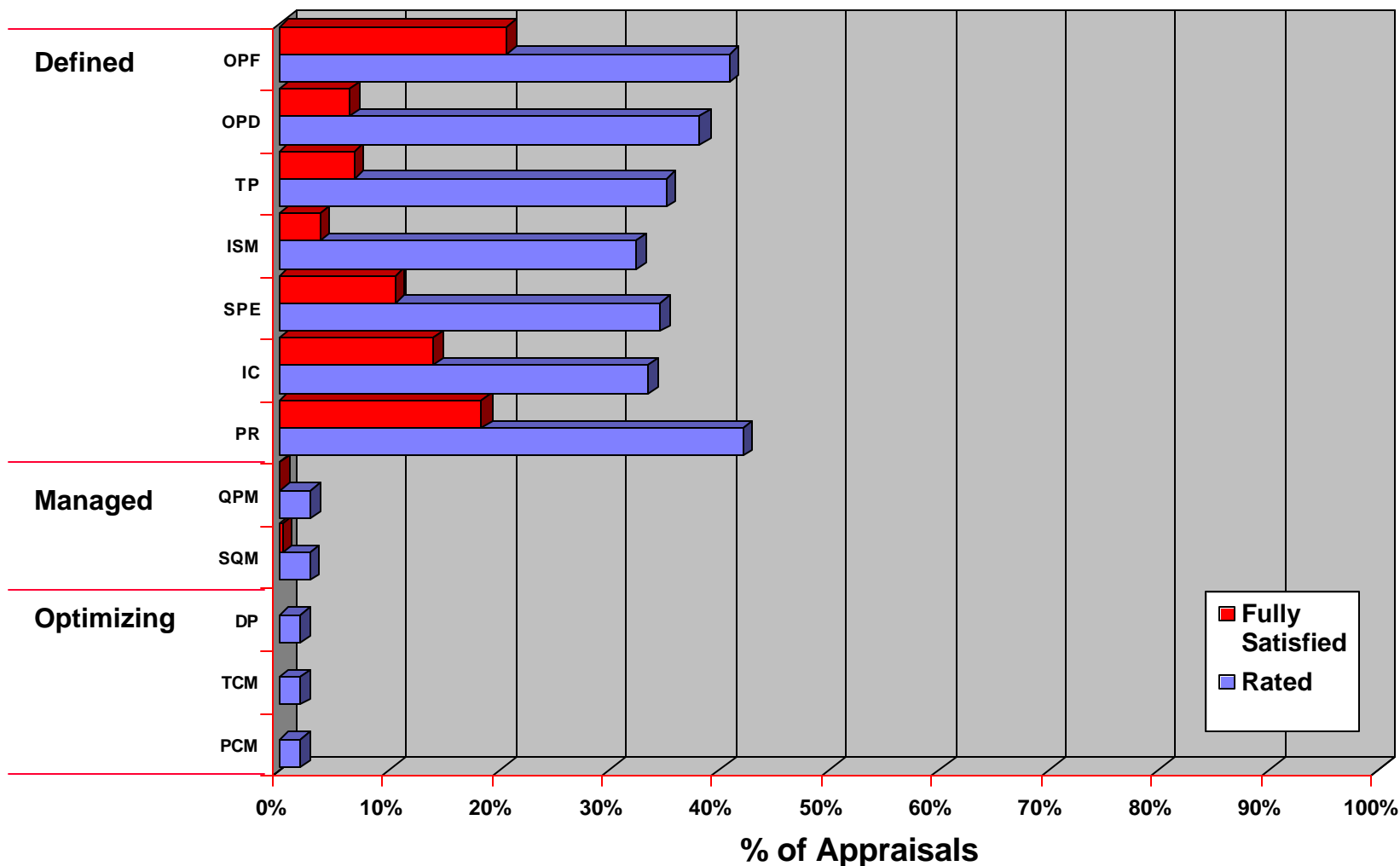


Based on 562 CBA IPI and SCAMPI with SW-CMM appraisals reporting a maturity level rating



Key Process Area Profiles - 2

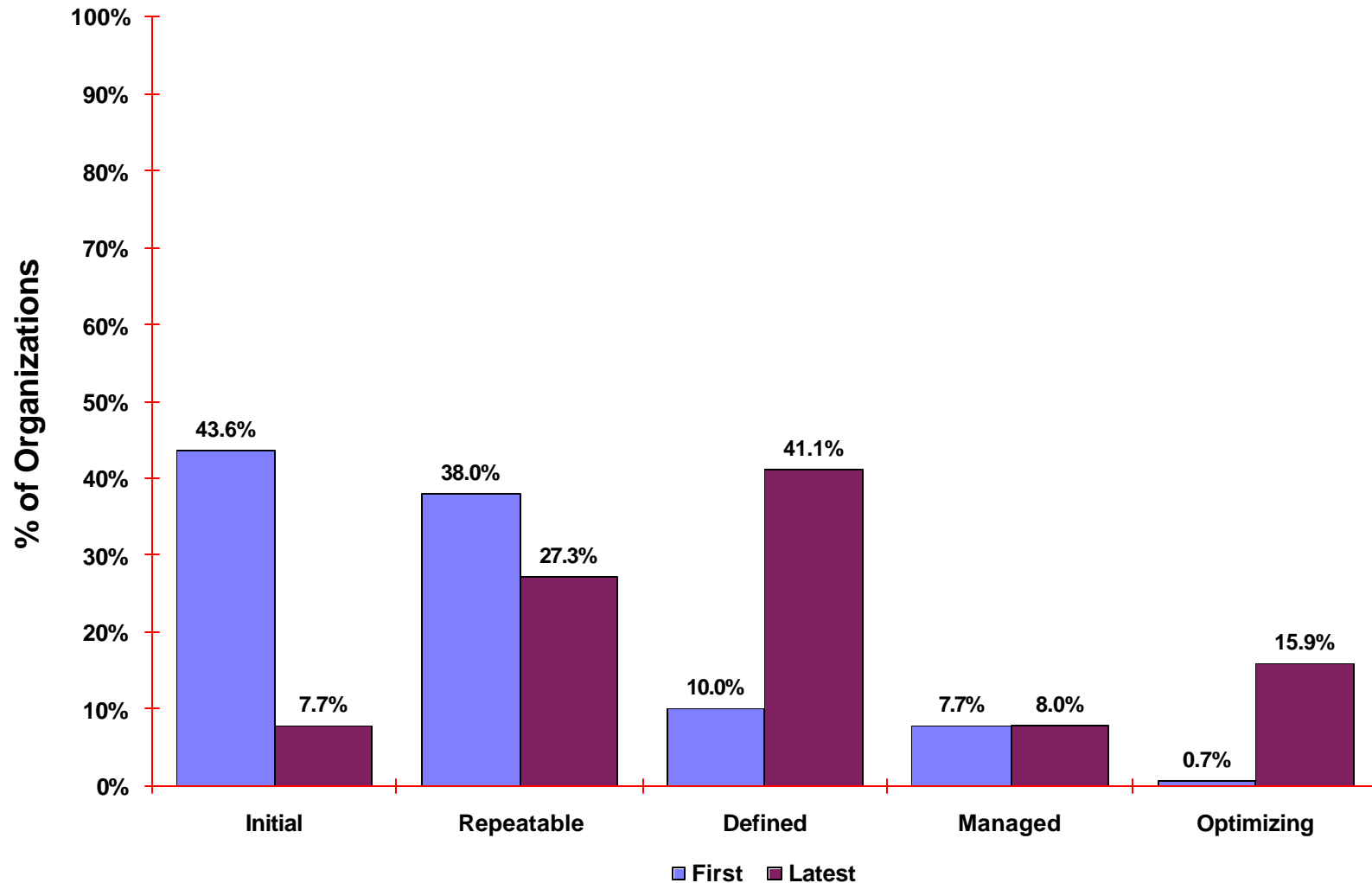
Organizations Appraised at Level 2



Based on 1094 CBA IPI and SCAMPI With SW-CMM appraisals reporting a maturity level rating



Maturity Level of First and Latest Appraisal

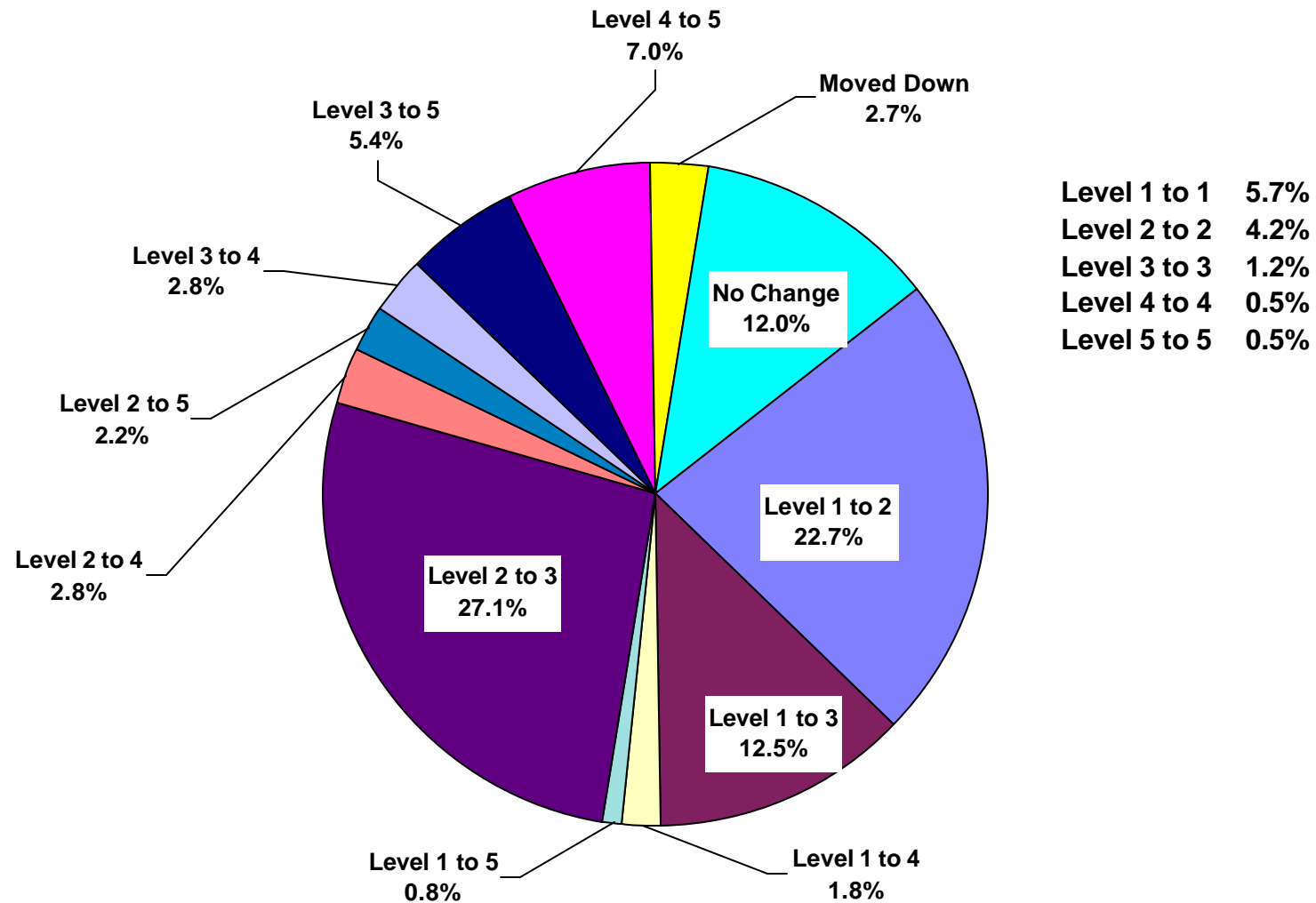


Based on **598** reappraised organizations using their first and latest appraisal



Reappraisals

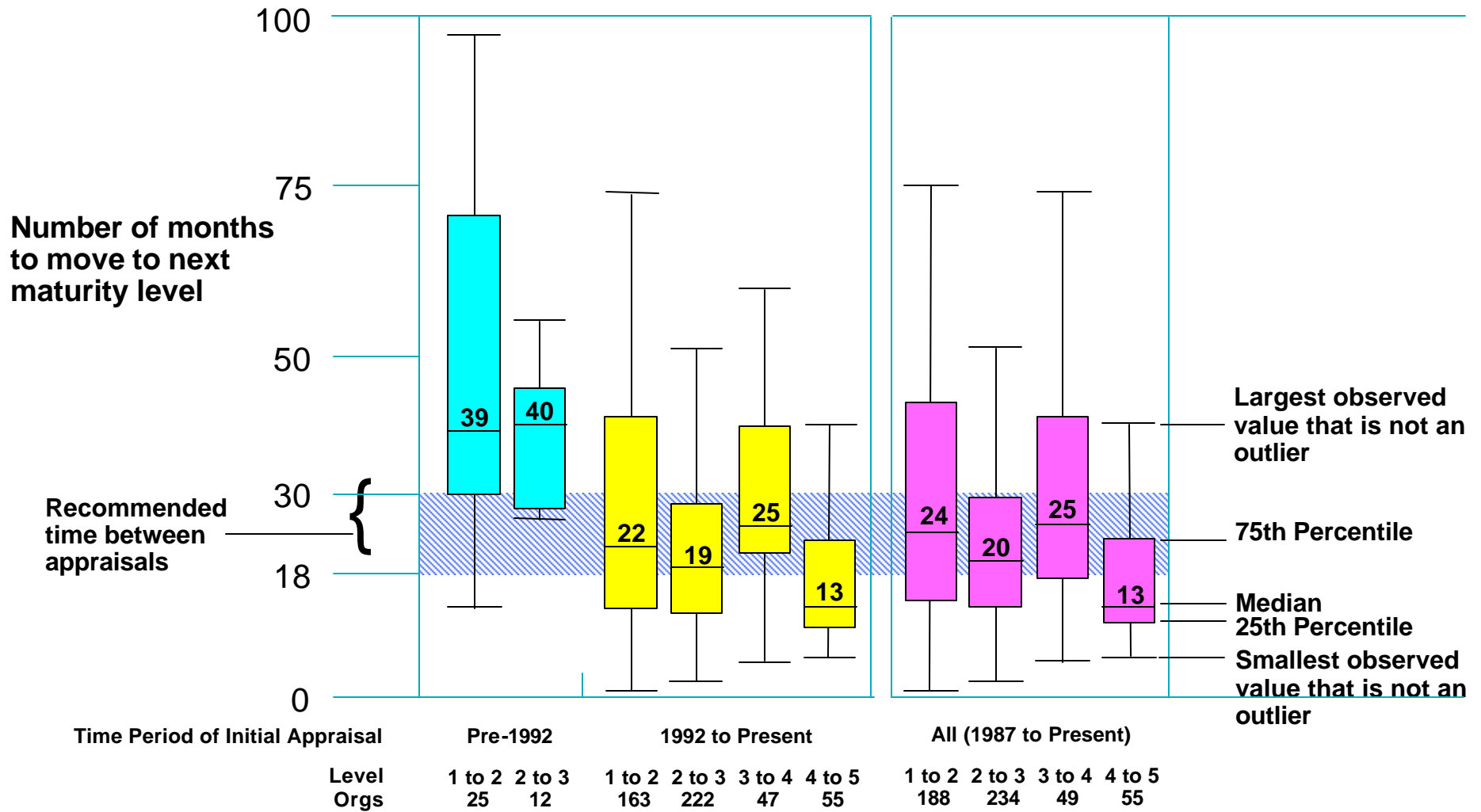
Change in Maturity Level



Based on **598** 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**



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

and review the information provided before contacting:

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