

CMMI Technical Report: Performance Results

Reflecting Appraisal Results from
January 2019 to December 2022

April 2023



ISACA[®]

CMMI Performance Solutions

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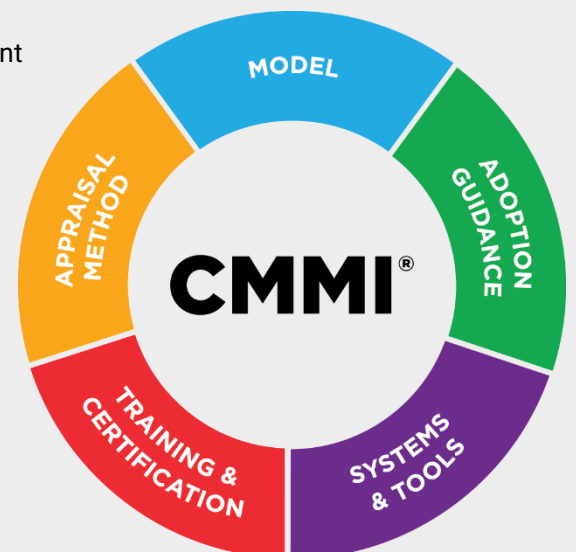
- **Quality:** Delivery, Peer Reviews, and Defects Rate, Density, & Detection
- **Productivity:** Project, Progress, Workload, and Development Productivity & Efficiency
- **Schedule:** Variance, Delivery Time, Story Points or Sizing, and Duration Deviation
- **Customer Satisfaction:** Customer Satisfaction, Service Level Agreement, and Communication
- **Cost Management:** Effort, Variance or Deviation, Control, Reduction, and Estimation

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Executive Summary

Leadership: An Inside Look

Strategic Beginnings: The CMMI has grown and evolved quite a bit in its 32-year history. Tracing the CMMI’s roots back to the Software CMM first released in 1991, the CMMI has set the bar and is synonymous with what the term “maturity level” means across a broad set of industries, domains, frameworks, and geographies.

Trailblazing Initiatives: With the rapidly increasing pace of technology, business, information growth, and changing world events, the CMMI has had to evolve more rapidly than ever. As such, I am happy to announce our **April 6 release of CMMI 3.0**. CMMI 3.0 is a culmination and assembly of community collaboration with engagement, feedback, and dialogues to make CMMI even more relevant.

CMMI V3.0 now broadens organizational performance improvement beyond product development, service operations, and supplier management—to now include security, safety, data management, people management, and managing virtual workforce best practices across these 8 domains—all integrated into a single, yet highly customizable model of best practices. Whether your organization wants to build a new capability or improve and mature an existing one, CMMI V3.0 provides the best practices for doing so—effectively and efficiently.

“CMMI Performance Solutions provide a prioritized pathway to build and implement new capabilities that deliver consistently measurable results and outcomes.”

Reporting: On this 32-year anniversary, we are also releasing the **2019-2022 CMMI Technical Report: Performance Results**. This report describes and highlights the consistently impressive results of performance improvement organizations who have adopted CMMI, as recorded in the CMMI Performance Report and independently validated by certified CMMI Lead Appraisers and Appraisal Teams.

CMMI Performance Solutions, and the V3.0 Model and related updates, continue to demonstrate consistent performance for quality, cost and schedule management, and productivity improvements in nearly any organization or industry, worldwide.



—Ron Lear, ISACA Vice President, Models and Frameworks CHMLA, LSSGB, ISO Lead Auditor

Learn More

For more information about adopting CMMI Performance Solutions, visit CMMIinstitute.com.



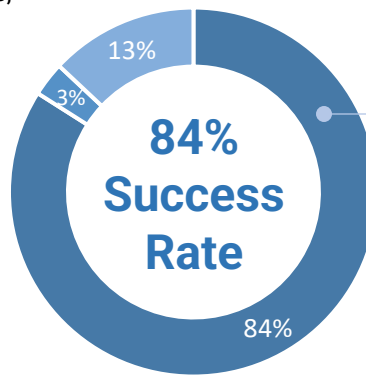
Goal Achievement

Maximizing Potential: Performance Data Overview

Over 8,000 appraised organizations affirm the impressive results achieved by leveraging CMMI to set, meet, and exceed organization goals

Background: For **over 23 years**, high-performing organizations have achieved clear, sustainable business results with ISACA's Capability Maturity Model Integration (CMMI). Originally created for the U.S. Federal Government to assess the quality and capability of software contractors, CMMI has expanded beyond software engineering to help organizations **in any industry** better understand their current level of capability and performance, offering comprehensive guides to **optimize business results**.

Report Basis: The information contained in this presentation is based on analysis of the performance improvement results from nearly **10,000 approved appraisals** from 2019 to 2022.



Data Sources: These appraised organizations reported their “before and after” improvement intentions—a total of **33,272 objectives** across the **8,866 organizations** appraised, in the required CMMI Performance Report template. The result was an astounding **84.4% achievement success rate** for their accomplished improvement objectives; this is a 3.1% increase over last year. Another 3% was “soon to be achieved” for a **total of over 87%** across key areas—including quality, cost & schedule performance, productivity, & more.

Validation: Each of these results was identified and achieved by the organizations being appraised against CMMI, with the resulting performance improvements **independently validated** by CMMI Appraisal teams.

Appraised Organizations:

8,866

CMMI Years of History:

23

Approved Appraisals:

9,579

Objectives Reported:

33,272

Soon or Actual Success:

87%

Appraisal Years:

2019-2022

Notables & Standouts

Key Takeaways: Best Practices

The overwhelming data is clear—adopting CMMI Performance Solutions yields consistent, measurable performance results across multiple industries and locations.

Exceed Performance Expectations

- CMMI adoption enables a proven and effective approach for performance-based improvement and enables innovation and transformation
- CMMI's focus on persistent and habitual performance improvement sets it apart from any other standard or model
- Flexible content architecture and an online experience adapt content to customer pain points, customizable views, and integration with other frameworks, such as ISO and COBIT

Best Practices: CMMI Addresses Sustaining Habit and Persistence

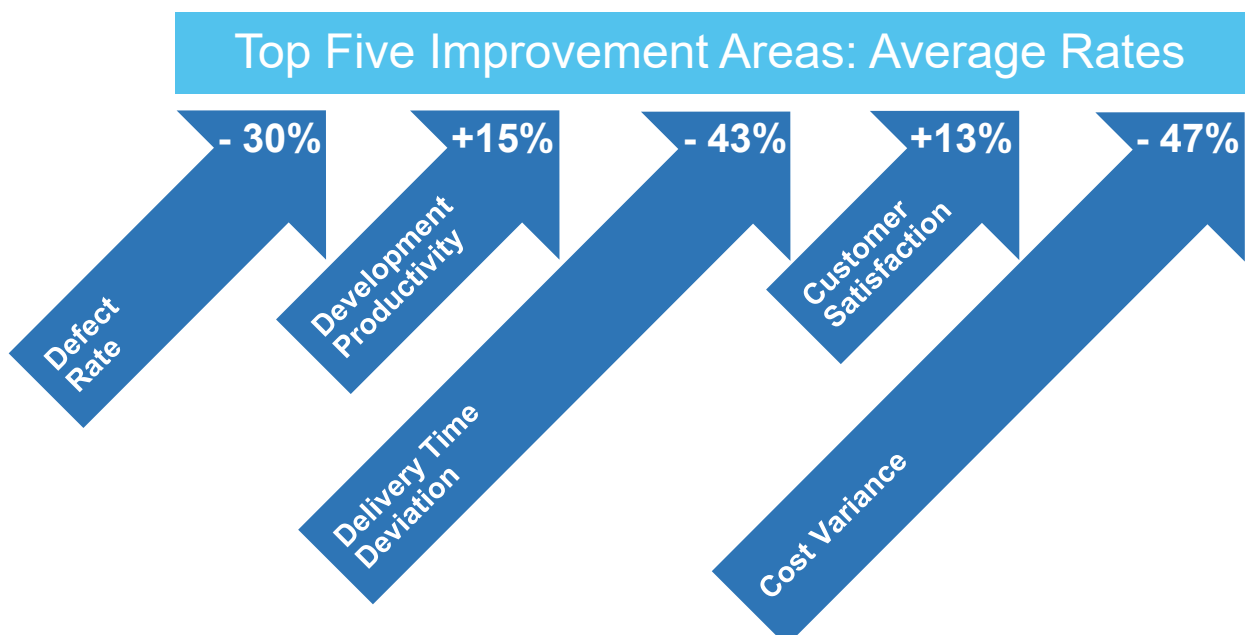
Performance improvement can become a habit.

CMMI best practices sustain habit and persistence—over time and between appraisals, with a "self-raising bar" for performance. Appraisals demonstrate and corroborate that improvement. Processes become habitual when:

- There is active senior management support
- Processes apply to everyone in the organization
- There are consequences for following or not following established processes

Top Improvement Areas: Average Rates

- **Quality:** Reduced **Defect Rate** by average of 30%
- **Productivity:** Improved **Development Productivity** by average of 15%
- **Schedule:** Reduced **Delivery Time Deviation** by an average of 43%
- **Customers:** Improved **Customer Satisfaction** by 13%
- **Cost Management:** Reduced **Cost Variance** by 47%



Section One

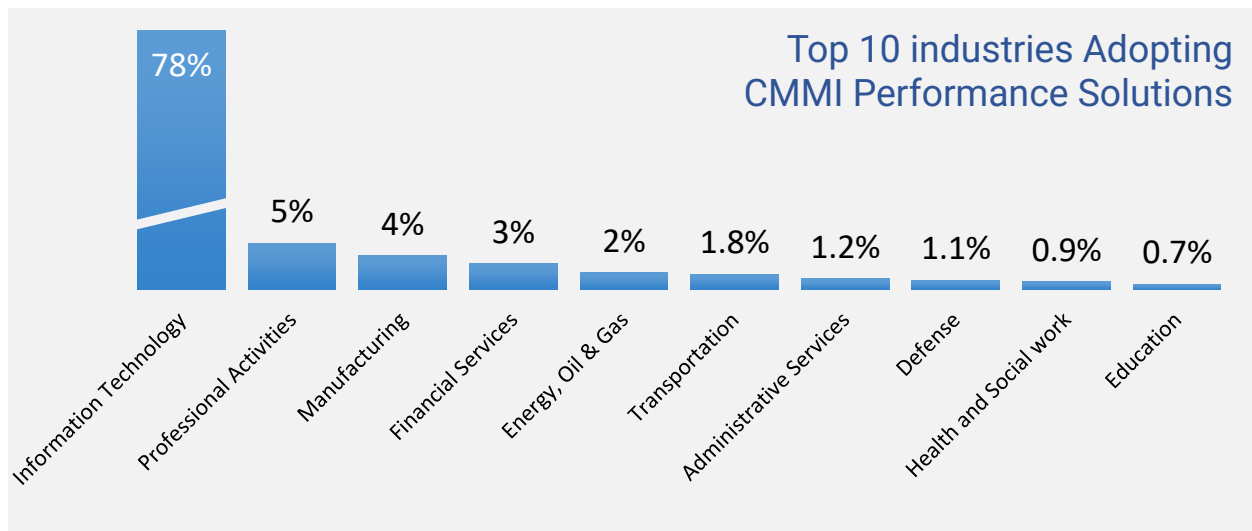
Results

These results are based on over 33,000 performance objectives* appraised to CMMI Performance Solutions, reported, and registered with ISACA, and independently corroborated by certified CMMI Appraisal Teams.

CMMI adoption continues to expand across industries; **not** just Defense and Government Contracting

- **Business Types:** Information Technology, Professional, Scientific and Technical Activities, Financial, Manufacturing, Transportation, and Commercial
- **Location:** Primary adoption in the United States, China, India, Mexico, and Spain

- **Remarkable Results:** All categories of business performance objectives showed significant performance improvement results
- **Achieving Expectations:** 84.4% of reported performance objectives were met or exceeded
- **The Biggest Categories of Improvement:** Quality, Productivity, Schedule, Customer Satisfaction, and Cost Management

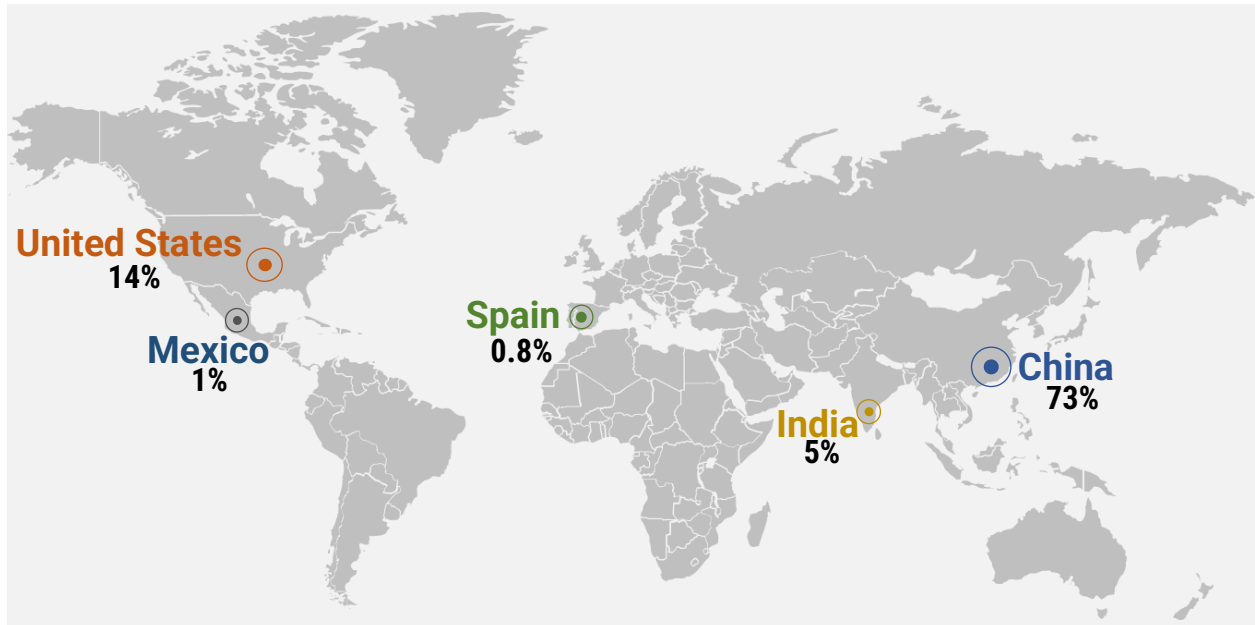


* 8,866 organizations conducted 9,579 appraisals with a total of 33,272 performance objectives. Several organizations conducted more than one appraisal resulting in a larger number of appraisals compared to the number of organizations.

Location: Where in the World?

Appraised Organizations by Country

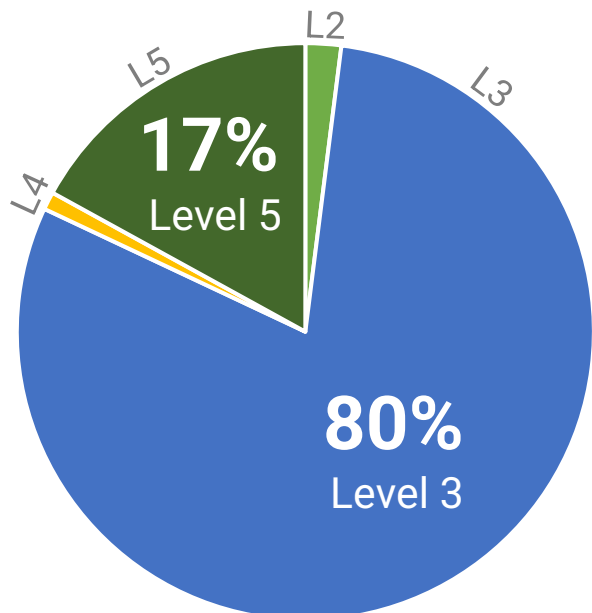
CMMI Performance Solutions has helped thousands of globally recognized companies assess their organizational capability and drive higher performance – many of which are Fortune 500 organizations.



Maturity

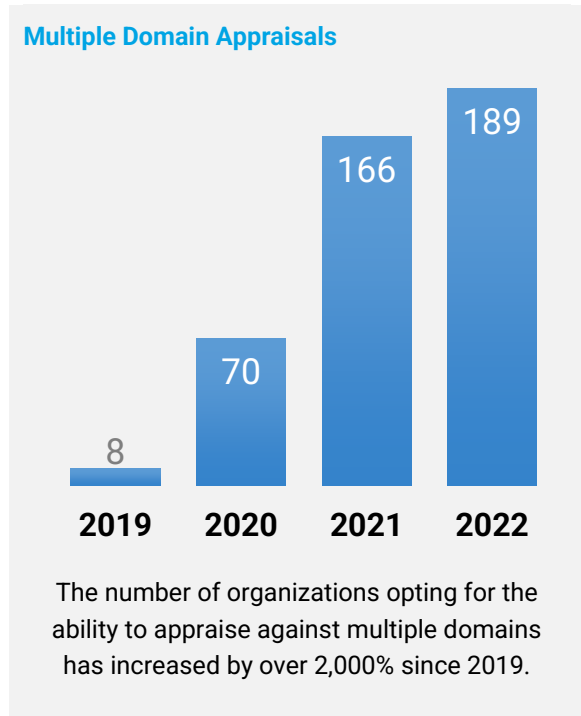
Appraisals by Maturity Level

Of the five CMMI maturity levels, Maturity **Level 3** (80%) and **Level 5** (17%) Appraisals remained the preferred choice for most organizations over recent years.



Domain Synergy

Appraisals by Domain

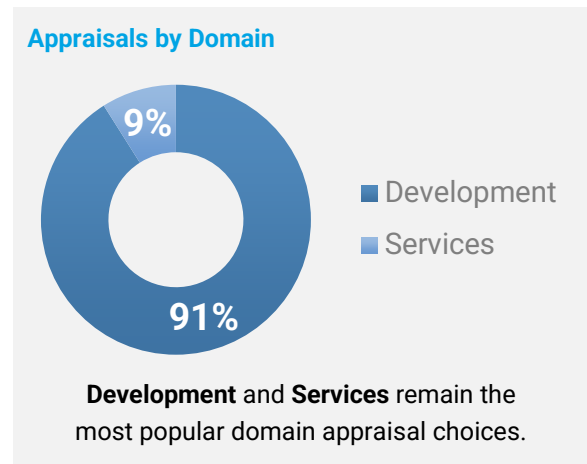


A CMMI Appraisal is an invaluable resource for organizations seeking to build capability, optimize their processes, and embrace a culture of continuous performance improvement.

A CMMI Appraisal serves as a critical tool for organizations seeking to enhance their processes and align them with industry-recognized best practices. By conducting a comprehensive evaluation of an organization's existing processes, a CMMI Appraisal facilitates the identification of strengths and areas for improvement, enabling organizations to focus on the most crucial aspects of their operations. This thorough examination ensures that the processes in place are not only effective but also adhere to the highest standards of quality and efficiency as prescribed by the CMMI framework.

Conducted by our licensed CMMI Partners, these appraisals offer organizations a valuable opportunity to gain insight into their current processes and chart a course for performance improvement. By uncovering and prioritizing areas for enhancement, organizations can strategically allocate resources and efforts to drive the most significant business impact. This targeted approach allows for continuous growth and improvement, ultimately fostering a culture of excellence and innovation within the organization.

Achieving a benchmark maturity level or a capability level demonstrates an organization's commitment to quality and continuous performance improvement. This recognition not only bolsters the organization's credibility in the eyes of its customers; it also reinforces its competitive advantage in the market. By demonstrating adherence to the CMMI best practices, organizations can differentiate themselves from competitors and foster trust among stakeholders, paving the way for continued success and growth.

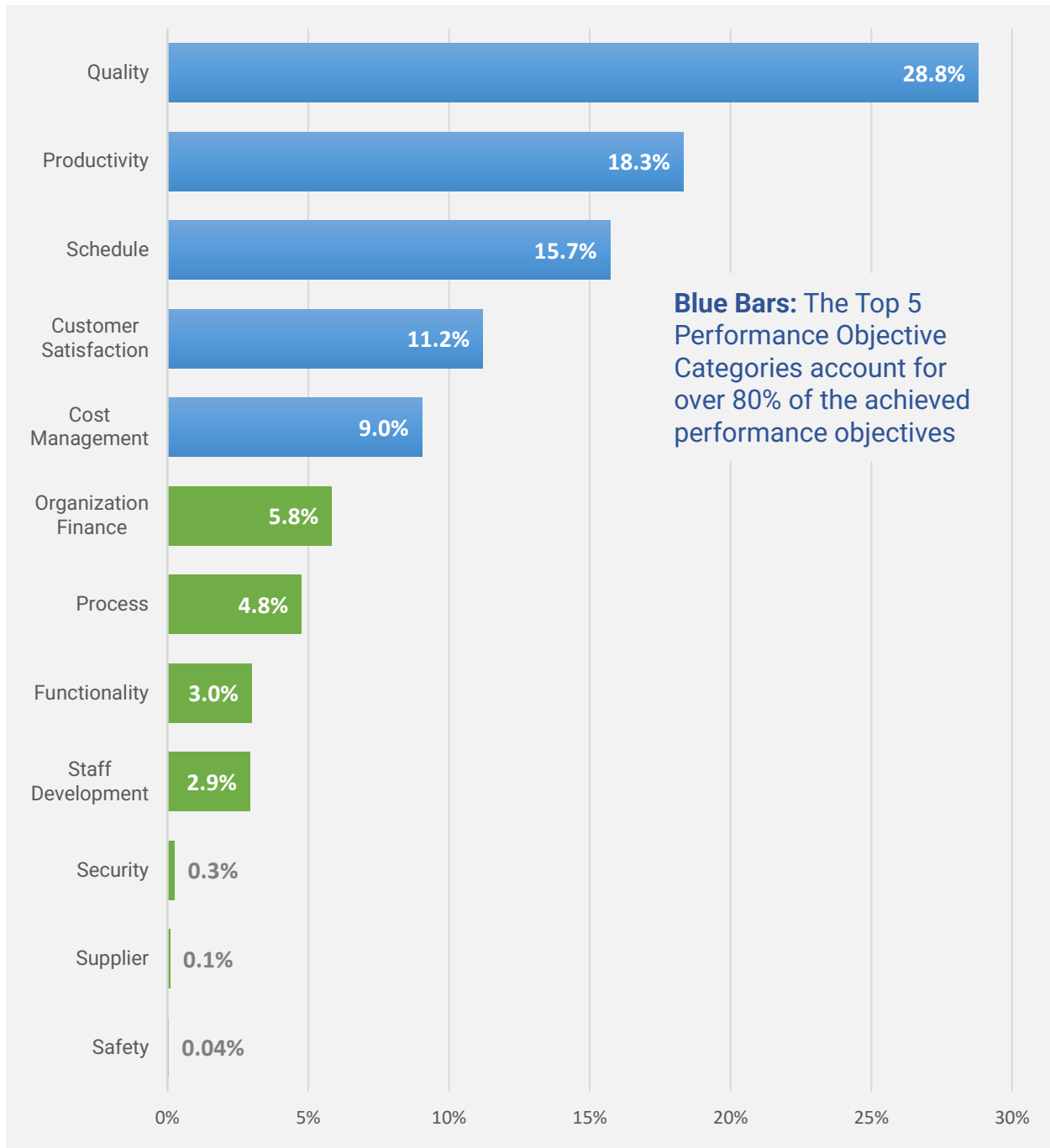


By identifying strengths and weaknesses, aligning with best practices, and prioritizing performance enhancements, organizations can unlock their full potential and achieve sustained success in today's competitive business landscape.

Performance Objective Categories

Improvements: 80% in Top Five

While organizations that implement CMMI consistently realize tangible performance improvements in multiple aspects and areas of their business, these five categories (blue bars) are consistently on top.

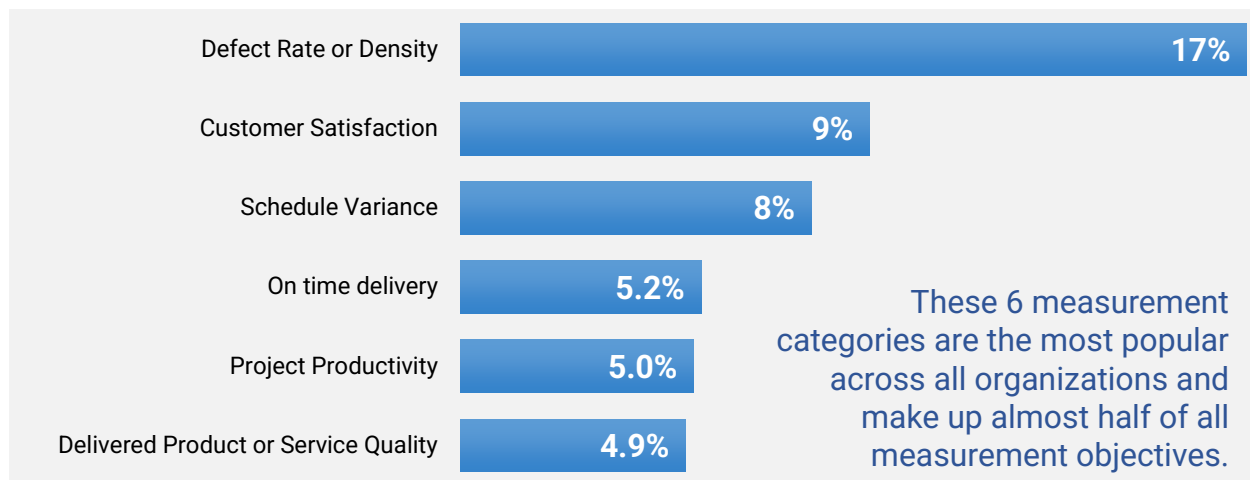


Reported Categories: What They Mean

Category	Description
Quality	Quality is concerned with making sure that the delivered solution, product, or service performs as the customer expects and errors or defects are kept to a minimum
Productivity	Productivity generally refers to how well and effectively an organization is using its resources to deliver its solutions, products, or services
Schedule	Schedule quality indicates that agreed-upon milestones are met well and consistently
Customer Satisfaction	Many of the other improvement categories are contributors to how customers perceive the organization's solutions, products, or services; this category is about directly measuring and improving that perception
Cost Management	Managing the cost of developing and delivering solutions, products, or services
Organization Finance	Revenue and profitability targets are consistently met
Process	People follow the agreed upon processes correctly
Functionality	Products, solutions, or services do what they are supposed to do The right thing, correctly built, operate correctly, and were delivered correctly
Staff Development	Having the right human resources with the needed knowledge and skills, and the capacity to deliver the organization's solutions, products, and services
Security	Prevention and control of threats
Supplier	Reduce enterprise risk and improve supply chain management capability
Safety	Prevention and control of harm

Organizational Priorities: Most Popular Categories

These top measurement categories indicate trends for common challenges or essential aspects of organizational performance across various industries



CMMI's Consistency in Driving Performance

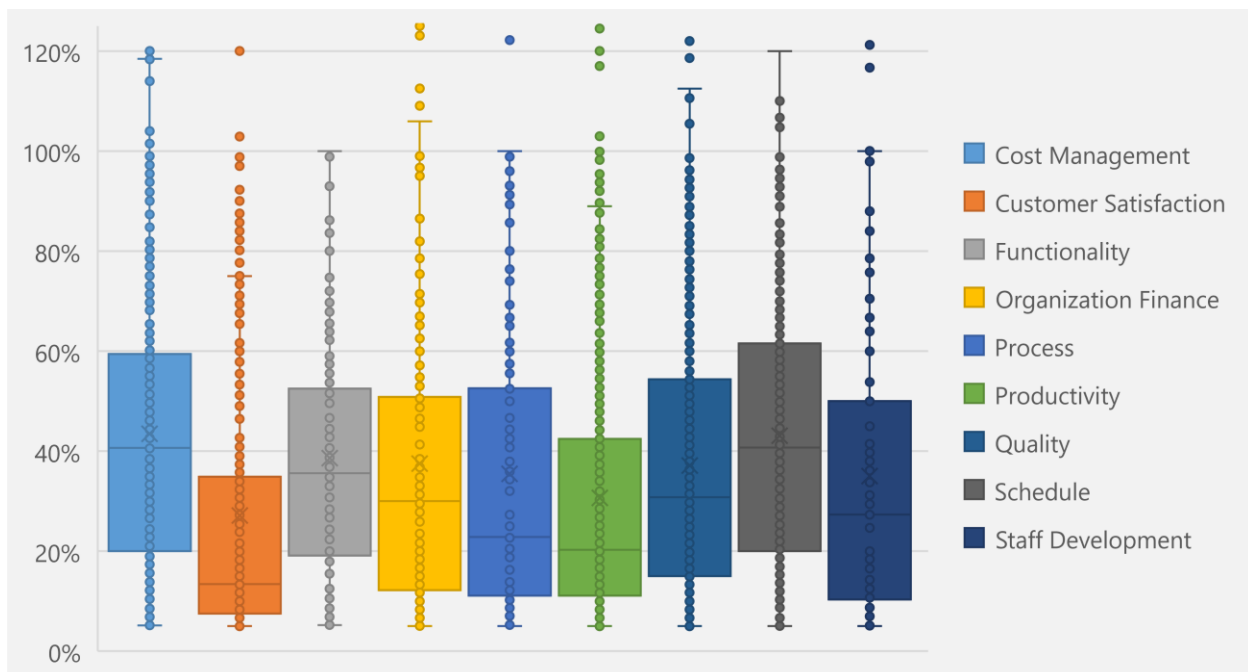
This chart demonstrates that the adoption of the CMMI ecosystem consistently yields significant improvements, regardless of the specific performance objectives that organizations opt to address.

Comparing Category Improvements: Analysis for this performance report has identified that when companies **target granular enhancements**—such as minor defect reductions, slight productivity increments, or leveraging CMMI to improve their processes; organizations experience **substantial advancements across the board**, with improvements ranging from 7.5% to 61.5%.

Furthermore, these **interrelated enhancements exhibit synergy**, where improvements in one area often positively influence others. For instance, elevating quality standards can bolster customer satisfaction, while fostering staff development can result in heightened productivity.

Key Takeaways:

- CMMI proves to be effective in driving significant growth for organizations, regardless of the specific performance objectives they choose to focus on.
- By targeting both granular enhancements and comprehensive improvements, organizations using CMMI can expect a wide range of advancements, from 7.5%-61.5%.





Section Two

Performance Objective Category Details

This section takes a deeper look at the subcategories of performance objectives where organizations had the most improvements.

This section highlights the performance objectives' subcategories where organizations have achieved the most significant improvements.

The initial review of our large volume of data examined the top five **performance objective categories**. Subsequently, the following pages explore their leading **performance objective subcategories**. These subcategories represent areas in which organizations frequently measured and experienced notable enhancements after implementing or using CMMI.

In prior years, our reports predominantly featured raw data figures with great attention to detail. However, responding to valuable feedback, our approach was refined this year to emphasize **percentages and averages** in more simplified charts, which tend to convey more profound insights and significance to discerning readers.

For more subcategory information, see the Terminology section on page 24 in the Appendix.

While reviewing the pages in this section, think about how these numbers might correlate to you or your client organization's top challenges. **Consider sharing related pages** from this report with influential decision makers to help them better understand the substantial prospects for improvement, as clearly identified and quantified in similar organizations.

"There is no better benefit than being a recognized leader in leveraging high maturity capability to build scalable, resilient, high performance business solutions and empowering organizations to deliver on the promises of excellence."

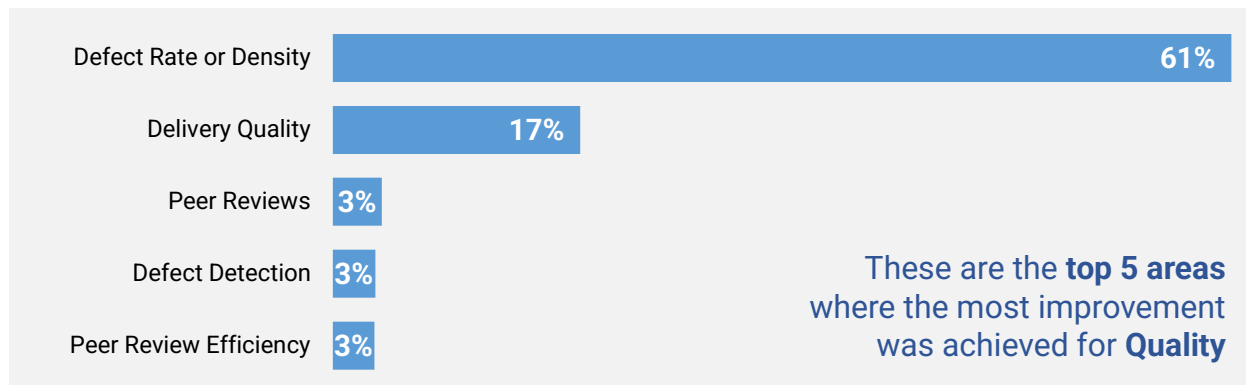
—Marilyn Robinson
Director of PMO and Quality Assurance

Quality Performance

Objectives

Quality-related objectives represent the biggest targeted area for performance improvement, with significant reductions in defect rate or density, delivered product or service quality and defect

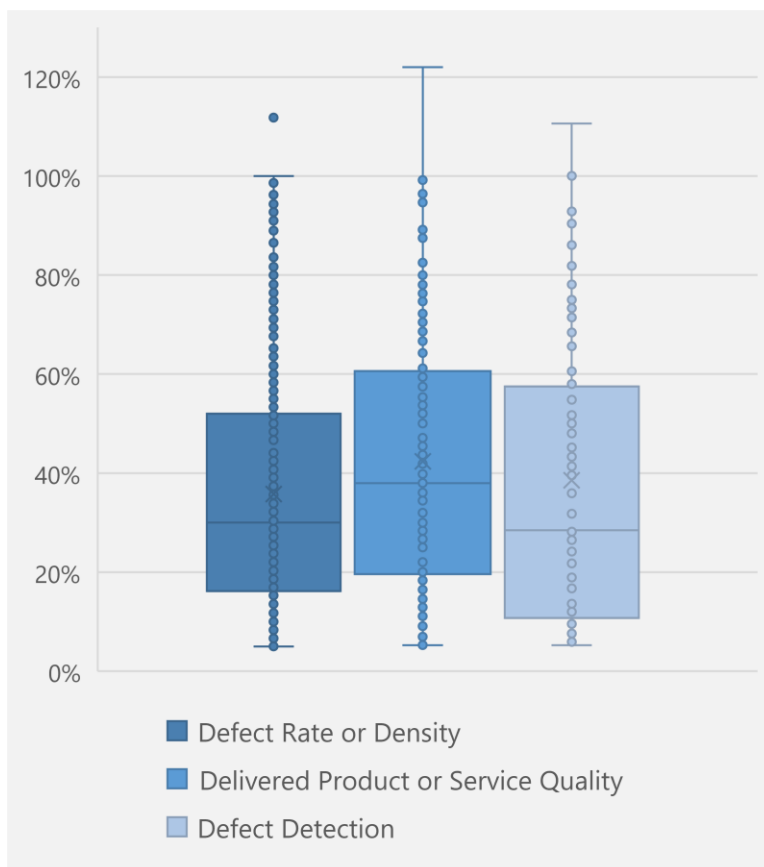
containment. Not only did delivered product quality improve, but the ability to detect and prevent defects also improved consistently for those organizations that targeted this area.



Improvements

Quality-related improvements included the following highlights.

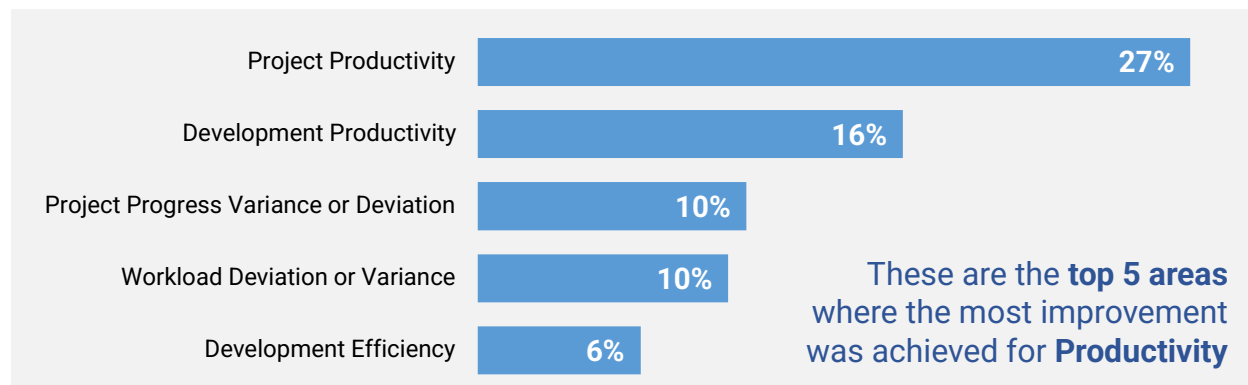
- **Defect Rate or Density** Improvements showed a range of 16% to 52% with a median improvement of **30%**
- **Delivered Product or Service Quality** Improvements showed a range of 20% to 61% with a median improvement of **38%**
- **Defect Detection** Improvements showed a range of 11% to 58% with a median improvement of **28%**



Productivity Performance

Objectives

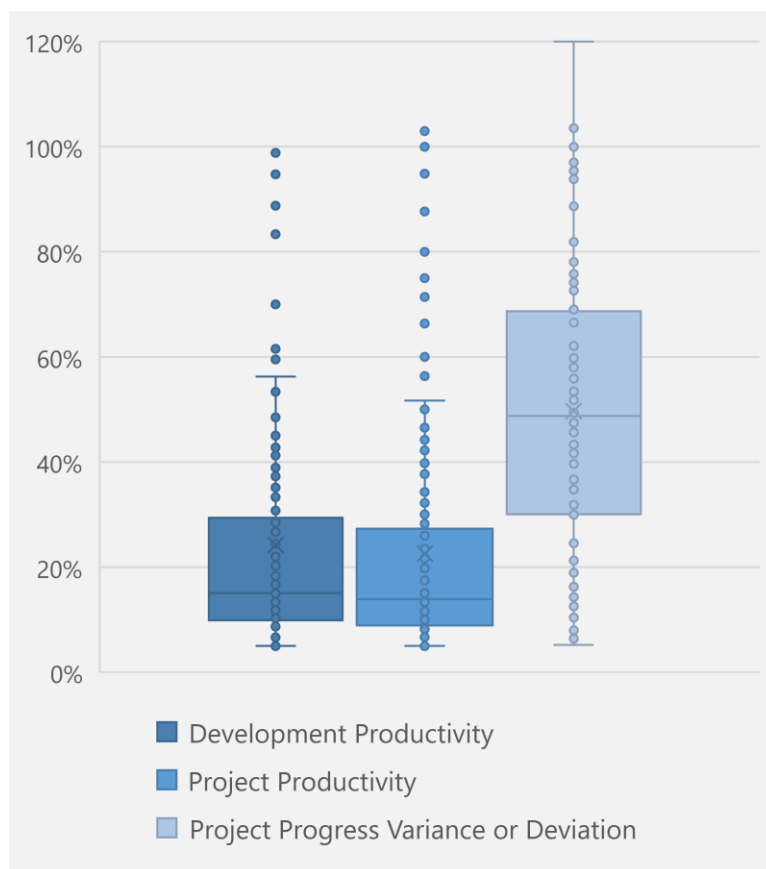
These **Productivity** objectives are directly related to streamlining critical development process performance and process automation, e.g., automated testing and development processes, DevSecOps.



Improvements

Productivity-related improvements included the following highlights.

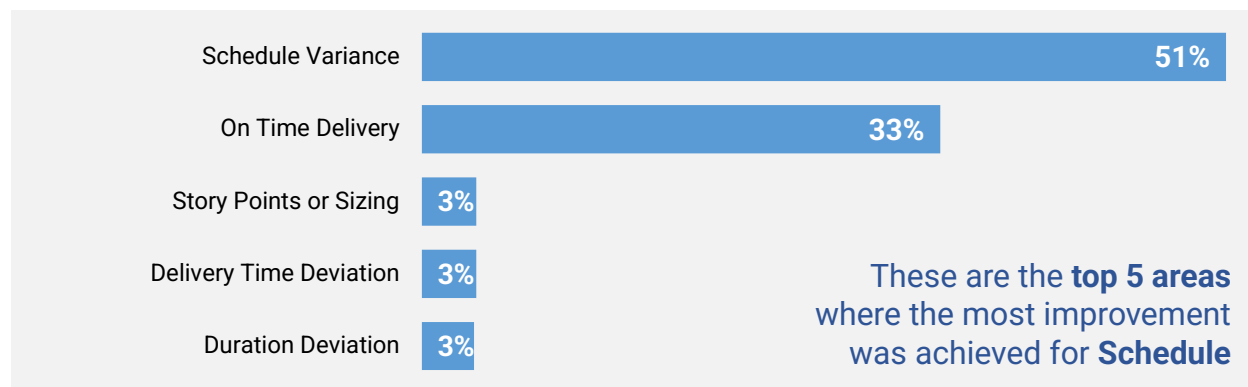
- Development Productivity**
 Improvements included a range of 10% to 29% with a median improvement of **15%**
- Project Productivity** Improvements showed a range of 9% to 27% with a median improvement of **14%**
- Project Progress Variance or Deviation** reduction showed a range of 30% to 69% with a median improvement of **49%**



Schedule Performance

Objectives

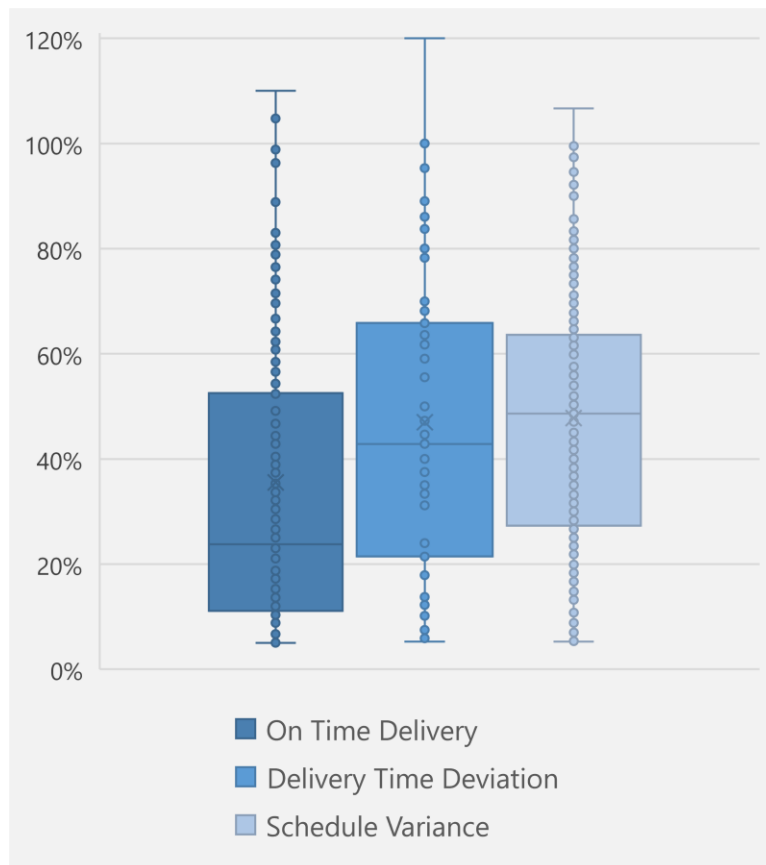
Results from appraised organizations show an average achievement of 84% of **Schedule** performance objectives (combining schedule variance and on time delivery)—an impressive accomplishment that any organization would be proud of.



Improvements

Schedule-related improvements included the following highlights.

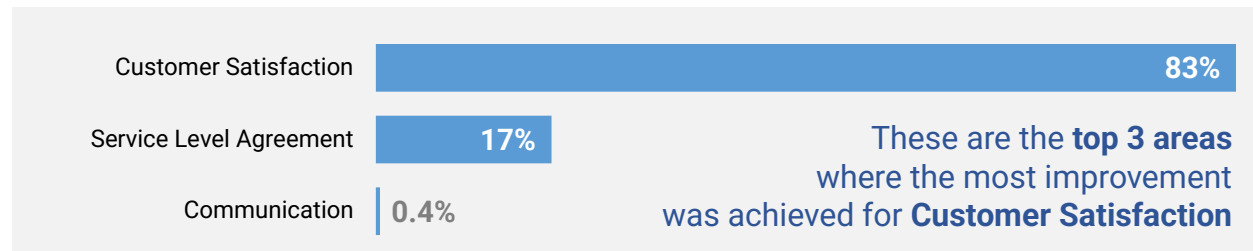
- **On Time Delivery** Improvements showed a range of 11% to 52% with a median improvement of **24%**
- **Delivery Time Deviation** reduction showed a range of 21% to 66% with a median reduction of **43%**
- **Schedule Variance** Reductions showed a range of 27% to 64% with a median reduction of **49%**



Customer Satisfaction Performance

Objectives

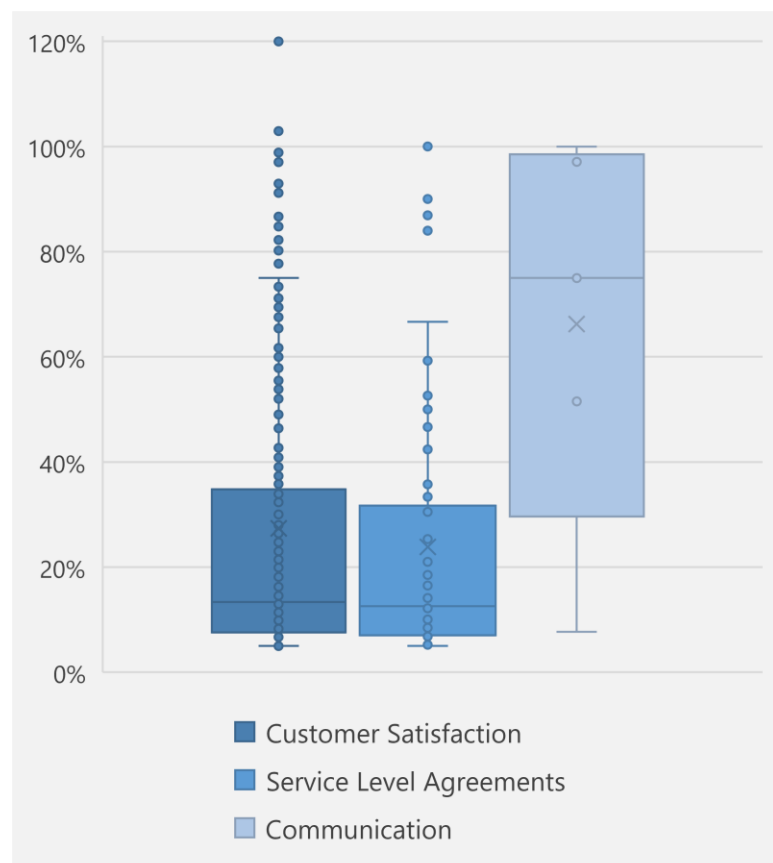
Customer Satisfaction is an essential metric for assessing the overall success of a project or product. Impact Areas include brand reputation, customer retention, market share, and overall business success. Common methods for improving may involve enhancing product or service quality, improving customer support, addressing customer feedback, and delivering on-time.



Improvements

Customer Satisfaction-related improvements included the following highlights.

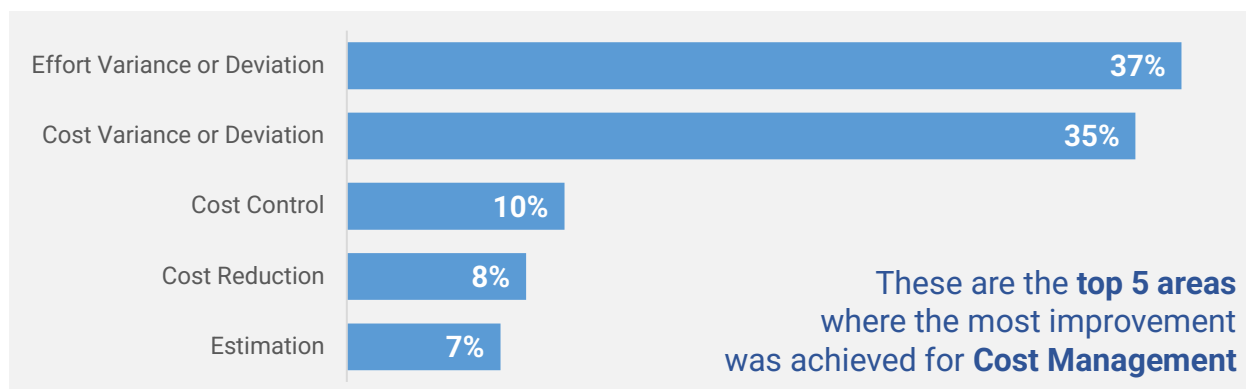
- **Customer Satisfaction** improvements showed a range of 8% to 34% with a median improvement of **13%**
- **Service Level Agreement** improvements showed a range of 7% to 31% with a median improvement of **31%**
- **Communication** improvements showed a range of 30% to 99% with a median improvement of **75%**



Cost Management Performance

Objectives

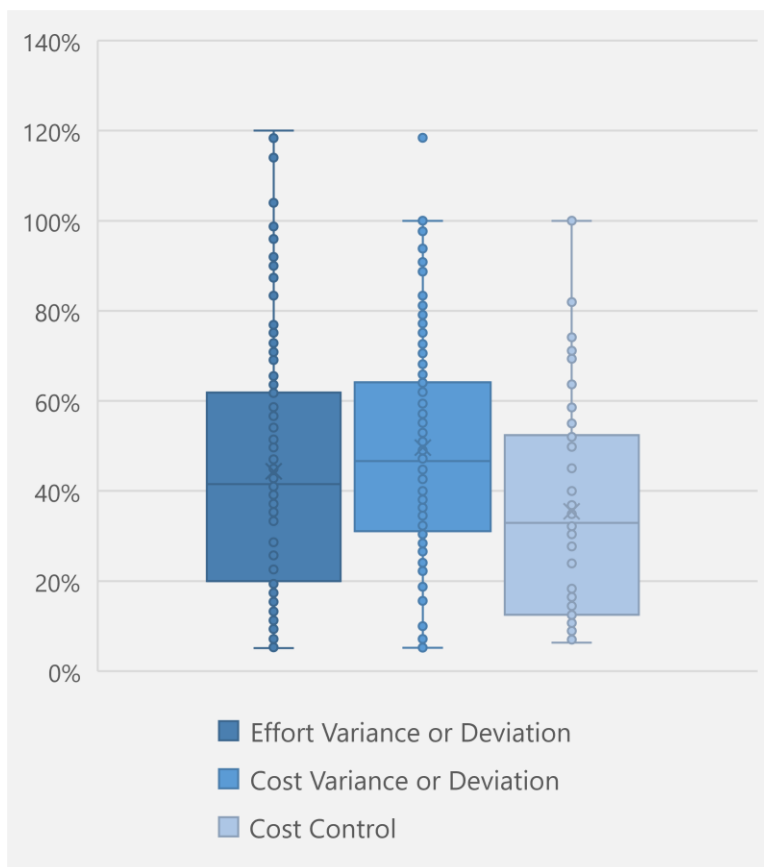
Regarding **Cost Management**, 72% of objectives included **effort variance/deviation** and **cost variance deviation**. The objectives include various types of cost management performance improvements, including reduced cost and effort variance, efficiency, and reduction. High predictability and consistency of cost management results make CMMI a no-brainer for any organization.



Improvements

Cost Management-related improvements included the following highlights.

- **Effort Variance or Deviation** reductions showed a range of 20% to 62% with a median reduction of **42%**
- **Cost Variance or Deviation** reductions showed a range of 31% to 64% with a median reduction of **47%**
- **Cost Control** Targets showed a range improvement of 13% to 52% with a median improvement of **33%**





Section Three

Appraisal Demographics

For more than 30 years, thousands of high-performing organizations have achieved sustainable business success through CMMI adoption and demonstrated their ability as capable business partners and suppliers.

Demographics

Appraisal Data Sources

The CMMI framework for process improvement has gained momentum across a wide array of industries and international demographics, establishing itself as a leading authority in driving organizational excellence. With over 19,000 organizations spanning aerospace, defense, healthcare, IT, and finance sectors, CMMI serves as a pivotal tool for enhancing performance, mitigating risks, and delivering consistent, high-quality results.

This section highlights the demographics of those who adopt CMMI, shedding light on the various sectors, regions, and entities that have successfully embraced this influential framework to drive sustainable growth and achieve their strategic objectives.

By exploring high-level metrics that reflect the success stories and unique applications of CMMI among diverse organizations, this showcases its adaptability and value in addressing complex challenges in today's dynamic business landscape.

"We see CMMI as an investment to improve our overall performance across systems, infrastructure, and processes."

—Guy Brosseau
Senior Vice President of IT

"We believe our focus on CMMI has shown a strong correlation to our higher quality output and increased Net Promoter Score (NPS)."

—A. Nandini
VP Head Delivery Assurance

"...expertise in cyber security, cloud migration, agile, and DevSecOps coupled with CMMI Maturity Level 5 will help ensure the protection of our nation's citizens and most vital assets."

—Manish Agarwal
President and COO

Enterprise Size

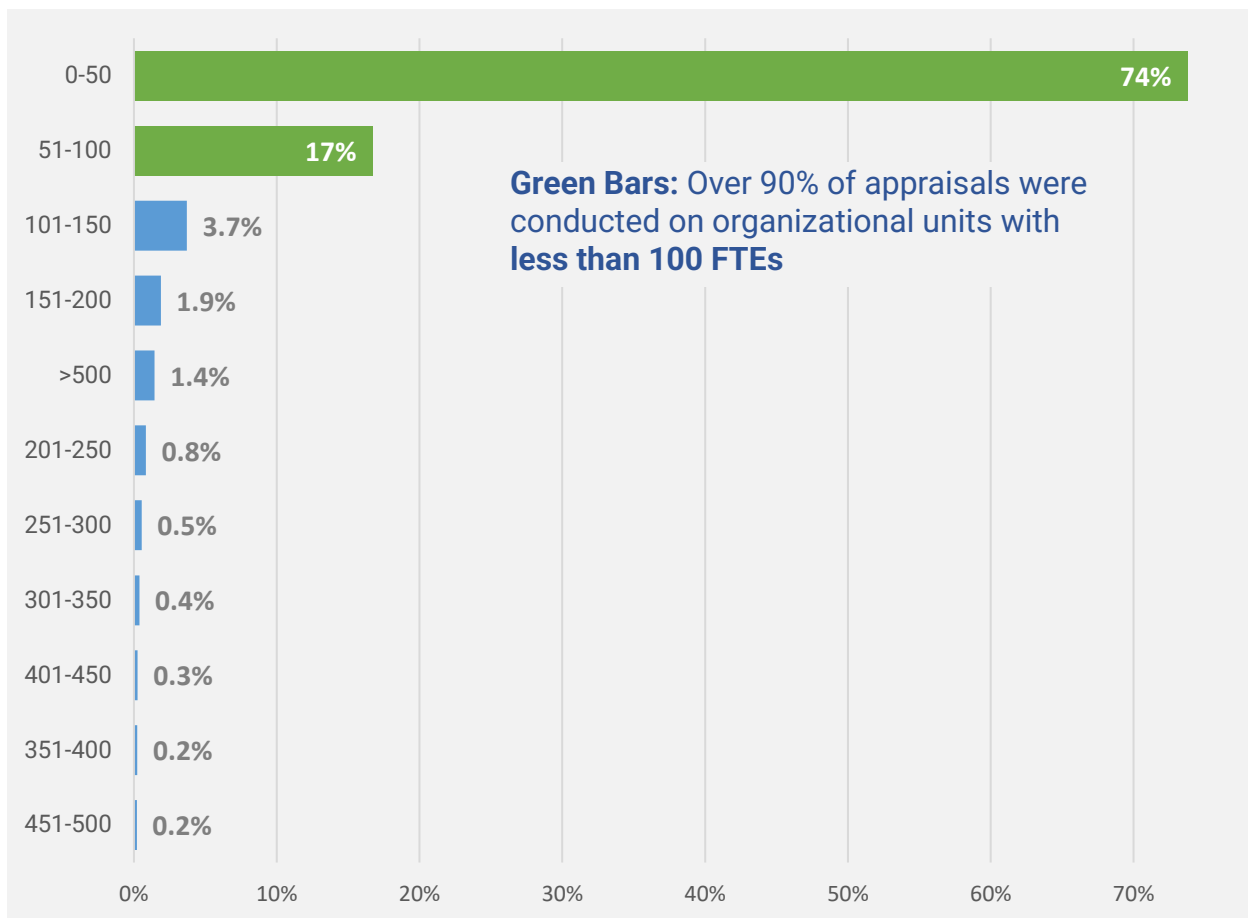
Adopting Organization Size: Small, Medium, and Large Businesses

Over 90% of appraisals were conducted on organizational units with less than 100 Full-Time Employees (FTEs).

A frequent misconception about CMMI is that it can only be seriously adopted by large organizations. However, as the graph shows, the vast majority of organizations conducting appraisals can be described as **Small or Medium sized Enterprises*** (SMEs). In fact, 96.9% of the organizations appraised had organizational units smaller than 250 employees, and 98.5% of the appraised organizations had organizational units with less than 500 employees.

Key Takeaway

- CMMI is flexible, useful, and suitable for small, medium, and large enterprises.



*SME Notes: UK Definition of SME is < 250 Employees; USA Definition of SME is < 500 Employees

Demographics

Who Uses CMMI?

Adoption Spectrum: As a globally recognized model for process improvement, CMMI is adopted by a diverse range of entities, including corporations, organizations, and governments. Spanning languages and facilitated by numerous partners, CMMI continues to shape the landscape of performance excellence worldwide.



Corporate Users: Prominent, nationally recognized companies are increasingly leveraging CMMI to drive process improvement and elevate performance standards. By embracing CMMI, these industry leaders set an example in pursuing excellence and fostering a culture of continuous growth and innovation.



Section Four

Appendix

The concepts of CMMI are rooted in proven industry best practices gathered over the last 30+ years. These practices are organized into a flexible, open, and integrated architecture that enables broad geographical and industry application and adoption with consistent performance results.

Locations: Country/Region Breakdown



American Samoa	Chile	Finland	Japan	Mongolia	Puerto Rico	Thailand
Andorra	China	France	Jordan	Morocco	Qatar	Trinidad & Tobago
Angola	Colombia	Germany	Kazakhstan	Mozambique	Romania	Tunisia
Argentina	Comoros	Greece	Kenya	Nepal	Russia	Turkey
Australia	Costa Rica	Guatemala	Kuwait	Netherlands	Saudi Arabia	U.S. Outlying Islands
Austria	Côte d'Ivoire	Guyana	Latvia	New Zealand	Singapore	U.S. Virgin Islands
Bahrain	Cuba	Honduras	Lebanon	Nigeria	Slovakia	Ukraine
Bangladesh	Cyprus	Hong Kong SAR	Luxembourg	Norway	Somalia	United Arab Emirates
Belarus	Czechia	China	Macedonia	Oman	South Africa	United Kingdom
Belgium	Denmark	Hungary	Malaysia	Pakistan	South Korea	United States
Bolivia	Dominican Republic	India	Mali	Panama	Spain	United States
Brazil	Ecuador	Indonesia	Malta	Paraguay	Sri Lanka	Uruguay
Brunei	Egypt	Ireland	Marshall Islands	Peru	Sweden	Venezuela
Bulgaria	El Salvador	Israel	Mauritius	Philippines	Switzerland	Vietnam
Cambodia	Estonia	Italy	Mexico	Poland	Syria	
Canada		Jamaica	Moldova	Portugal	Taiwan	

Purpose

Assess, Capture, and Corroborate: CMMI Capability and Performance Results

As an integral component of CMMI, the **Performance Report** is completed by each appraisal team during the appraisal based on the **organization objectives** and measurement data—and is corroborated with the organization being appraised.

This report is NOT just an appraisal artifact; **it is a tool** for performance planning, data collection, and cross-checking performance improvement—all to verify business performance improvement before, during, and after the appraisal.

- While it cannot be used alone to determine a maturity or capability level rating, the Performance Report is used to **verify if the appraisal findings** and performance improvement results are consistent with the Performance Report
- The Performance Report provides a mechanism to **assess tangible and measurable improvement** along with meeting model Practice Area intent and value statements
- Enables **the “self-raising bar”** in the model and appraisal method for performance and High Maturity; appraisal teams must see and corroborate the performance improvements; this also becomes critical to understand previous performance improvement when doing re-appraisals
- Helps to **identify critical performance weaknesses** and improvement opportunity “anchor points” and makes performance improvement clear, transparent, intentional, and consistent
- For organizations **pursuing High Maturity** or who have already attained High Maturity, populating the Performance Report is the “Easy” button

The CMMI Performance Report:

- ❖ The Key to Unlocking Continuous Improvement and High Maturity
- ❖ The Path to Identifying and Addressing Critical Performance Weaknesses for Optimal Growth
- ❖ A Critical Tool to High Maturity and Consistent, Continuous Improvement
- ❖ An Essential for all High Maturity Pursuits



Performance Perspective

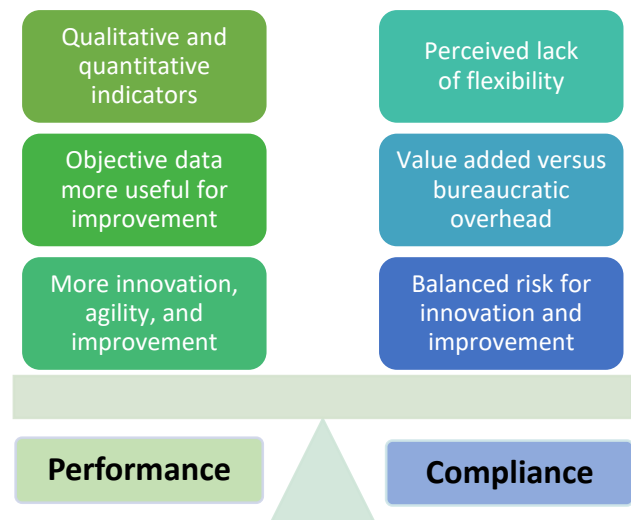
Compliance vs. Continual Performance Improvement

CMMI adoption has successfully shifted the framework and product ecosystem from a process compliance model to a **business performance improvement model**. A compliance-only focus typically assumes that quality of performance is a guaranteed outcome, which is typically NOT true.

Performance practices and expected outcomes emphasize and focus on improving organizational performance to recognize a more visible return on investment (ROI). This reflects the modern business climate where performance is key to the success of every organization—no matter their maturity level. With performance built in at every level, organizations can plan a more methodical and step-by-step path to achieve better performance and **High Maturity**.

Governance by senior management is critical for consistent improvement and innovation; and it must be clearly directed and purposeful. While there should always be a balance between performance improvement and compliance, **performance should drive compliance**.

Balanced Approach with a Performance Focus



"Innovation and performance improvement requires discipline. Each aspect must be counterbalanced by tougher behavior that's less fun...rigorous discipline, a high level of individual accountability, and strong leadership."

Gary Pisano

*The Hard Truth About Innovative Cultures,
Harvard Business Review, Issue 97, Jan/Feb, 2019*

Terminology

Subcategory Descriptions

The following table is a structured overview of subcategories and their corresponding descriptions, grouped by category. This organized layout offers a clear and concise understanding of the relationships and distinctions among these elements, enabling quick reference for the statistical charts and diagrams in this report.

Category	Subcategory	Description
Cost Management	Cost Control	Actual Costs compared to estimated or budgeted costs
	Cost Management	Planning and controlling costs associated with an organization
	Cost Performance	Amount of completed work for every unit of cost spent
	Cost Reduction	Degree to which actual costs are reduced
	Cost Variance or Deviation	Difference in planned and actual costs as a percentage of planned costs
	Effort Variance or Deviation	Deviation between a planned and actual effort for various phases within the project
	Estimation	Estimated costs of activities
Customer	Communication	Exchanging information between the organization and its customers, stakeholders, and/or employees
	Customer Satisfaction	Customer's perception of value
	Service Level Agreement	Level of service expected between a customer and a supplier
Functionality	Baselined Requirements Change Rate	Frequency requirements change from their baselined state
	Functionality	General functionality related measure or objective
	Interface or Integration Complexity	Complexity of an interface or integration
	Mean Time Between Failures	Mean Time Between Failures
	New Requirements Change Rate	Frequency new requirements change
	Requirements	Requirements development
Organization Finance	Budget Related	Budgeting activities in an organization
	Business Growth	Increasing or expanding the organizations market share
	EBITDA	Earnings before interest, taxes, depreciation, and amortization
	Finance	General finance related measure or objective
	Financial Margins	Ratio to gauge when an organization makes money
	Income Growth	Percent of increase of net income
	On Time Payment or Invoicing	Proportion of payments or invoices that are sent or received on time
	Organization Finance	General organization finance related measure or objective
Profit Growth	Growth in profit of an organization for a specified period of time	

Category	Subcategory	Description
	Proposal	Procurement and/or procurement process of a work contract
	Revenue Increase	Amount of money made by the organization over time compared to a previous, identical amount of time
	Sales Growth	Organization's ability to increase revenue through sales over a specific time period
	Turnover	Amount of business for a particular period
Process	Configuration and Change Management	Maintaining the integrity of hardware, software, firmware, and documentation related to the configuration and change management process
	Contract Compliance	Monitoring and controlling the procedures and norms outlined by a contract with another organization
	First Time Right	Procedure is performed in the right manner the first time and every time
	Problem Resolution Duration	Elapsed time between the time that a problem is discovered, until the point in time that the problem is resolved
	Process	General process related measure or objective
	Process Adoption and/or Compliance	Related to the adoption and compliance of an organization to its defined processes
	Process Cycle Time	Improving the speed of the organizational processes
	Process Improvement	Effort to effort to improve products, services, or processes
	Process Quality Assurance	Objective evaluation of the performance of processes and work products against process descriptions, standards, and procedures
	Risk Management	Identification and management of risks and opportunities
	Security	Threats or dangers to an organization
	Productivity	Code Reuse Rate
Defect Removal Efficiency		Proportion of defects found internally versus the defects found externally
Delivery Efficiency		Proportion of planned work completed
Development Efficiency		Amount of software developed or requirements divided by the resources used
Development Productivity		Ability of a team to quickly and efficiently write software during a specific time
Productivity		General productivity related measure or objective
Project Or Production Efficiency		Amount of work completed per time measured
Project Productivity		Amount of work completed per unit of time
Resource Utilization		Proportion of total time or effort that a resource is gainfully employed
Reuse Ratio		Proportion of code reused for a project
Rework	Proportion of total time or effort rework consumes	

Category	Subcategory	Description
	Service or System Availability	Time the service or system is available for use
	Services	Work provided by an organization or supplier
	Sprint Efficiency	Amount of work completed per sprint
	Test Automation	Amount of testing automated
	Test Efficiency	Efficiency of the testing processes
	Testing Productivity	Ability of a team to quickly and efficiently perform testing activities during a specific time
	Velocity	Amount of product or work product produced per unit effort or time
	Work Efficiency	Production accomplished with the smallest amount of resources wasted
	Workload Deviation or Variance	Amount of variation of the work
	Workload Reduction	Amount a workload is reduced
	Safety	Amount of injuries per unit time or effort
	Test Coverage	Amount of testing covering requirements, use cases, platforms, code, etc.
Quality Supplier	Defect Closure	Rate defects are resolved
	Defect Containment	Rate defects are found and fixed before a product is released
	Defect Detection	Rate defects are discovered
	Defect Injection Rate	Rate defects are introduced into a product
	Defect Rate or Density	Proportion of defects in a product
	Defect Resolution Ratio	Rate resolved defects are reopened
	Delivered Product or Service Quality	Excellence of a delivered product or service
	Peer Review Efficiency	Number of review defects in documentation compared to the number of testing defects
	Peer Reviews	Review of a project's artifacts including documentation, requirements, code, design, test cases, etc.
	Quality	General quality related measure or objective
	Review Effectiveness	Fraction of defects are discovered by reviews
	Test Pass Rate	Percent of passing test cases
	Testing Activities	General test related activities
	Testing Effectiveness	How effectively testing is completed so that it meets the requirements
Schedule	Delivery Time Deviation	Difference between the stated delivery time and the actual delivery time
	Duration Deviation	Difference between the baseline duration of a task and the total duration of a task

Category	Subcategory	Description
	On Time Delivery	Proportion of target dates (e.g., milestones or delivery dates) that are achieved
	Planning	Project planning activities
	Project Delay Rate	Number of days delayed (difference between target and actual)
	Project Progress Variance or Deviation	Amount the project deviates from planned performance
	Schedule	Plan for items to be completed and their time for completion
	Schedule Performance Index	Earned value/planned value
	Schedule Variance	Actual progress against expected progress
	Story Points or Sizing	Schedule indicators related to story points or task sizing in agile projects
Security	Incidents	Occurrence of security related events
Staff	Employee Retention	Ability of the organization to reduce employee turnover
	Employee Satisfaction	Satisfaction, attitude, and overall outlook of an organization's employees
	Employee Skill Development	Improving and developing employee competencies to support business growth
	Organizational Development	Improving the organizations performance and or culture
	Staff Development	An indication of workforce knowledge, skills, capacity, and readiness to deliver solutions, products, and services
Supplier	Supplier Quality	Supplier's ability to deliver goods or services that satisfy customers' needs

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Unleash Potential: CMMI Performance Solutions

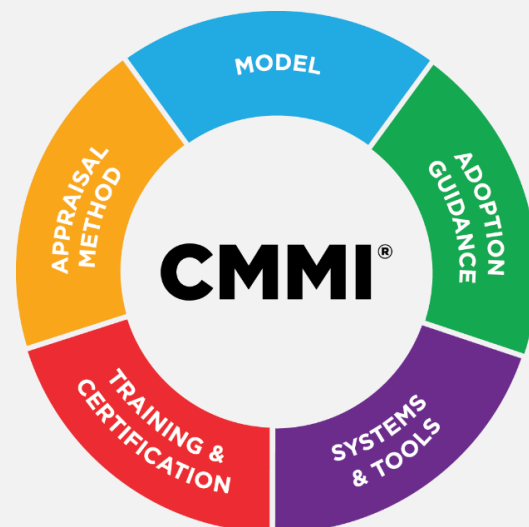
CMMI Performance Solutions helps organizations quickly understand their current level of capability and performance in the context of their own business objectives and compared to similar organizations.

CMMI's performance improvement model has helped thousands of globally recognized companies—including many Fortune 500 organizations. CMMI Performance Solutions has been designed as an integrated Product Suite to address all the components of the CMMI ecosystem. For [performance improvement by industry](https://cmmiinstitute.com/Resource-Files/Public/CMMI-Technical-Report-Industry-Improvements-by-Cat), visit cmmiinstitute.com/Resource-Files/Public/CMMI-Technical-Report-Industry-Improvements-by-Cat.

Integrated Product Suite

CMMI offers an integrated product suite consisting of five components, that when used together provide a clear and proven path to achieving your business objectives.

- **Training and Certification:** Training has modular components with virtual and in-person models. Provides performance-focused content and exercises. More learner-focused and learning objective oriented.
- **Appraisal Method:** The appraisal method helps to increase reliability while reducing overall cost and disruption to organization appraised. Standard Performance Report template integrated into the appraisal method.
- **Model:** Clear pathway to performance improvement. Simplified for accelerated adoption. Built-in value statements for Practice Areas and Practices to target performance improvement.
- **Adoption Guidance:** Easy onboarding for new adopters to get started with CMMI.
- **Systems and Tools:** System provides interactive user experience with model, appraisal method, and performance reporting resources.



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ISACA® (www.isaca.org) is a global community advancing individuals and organizations in their pursuit of digital trust. For more than 50 years, ISACA has equipped individuals and enterprises with the knowledge, credentials, education, training, and community to progress their careers, transform their organizations, and build a more trusted and ethical digital world. ISACA is a global professional association and learning organization that leverages the expertise of its more than 165,000 members who work in digital trust fields such as information security, governance, assurance, risk, privacy, and quality. It has a presence in 188 countries, including 225 chapters worldwide. Through its foundation One In Tech, ISACA supports IT education and career pathways for underresourced and underrepresented populations.

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