



CMMI® V2.0 Performance Report Summary

How Organizations Around the World are Leveraging
CMMI V2.0 to Gain a Competitive Edge Through
Improved Business Performance

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ISACA.

CMMI Performance Solutions

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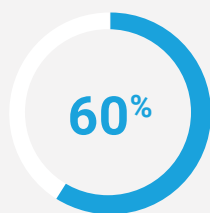
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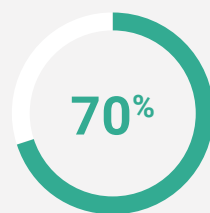
HIGHLIGHTS

CMMI V2.0 consistently improves business performance for organizations in the following ways



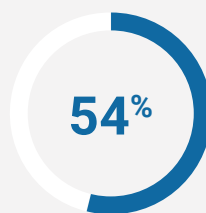
Reduce rework by up to 60%

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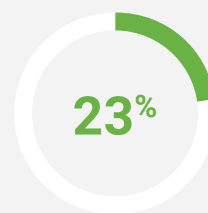
Improve product quality by 70%

SEE PAGE 12



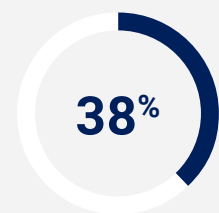
Improve productivity up to 54%

SEE PAGE 13



Average improvement in defect containment

SEE PAGE 12



Development velocity increased up to 38%

SEE PAGE 13

EXECUTIVE SUMMARY:

CMMI V2.0 Performance Results

For 25+ years, high-performing organizations have achieved clear, sustainable business results with ISACA®'s Capability Maturity Model Integration (CMMI®) models. Originally created for the U.S. Department of Defense to assess the quality and capability of their software contractors, ISACA's CMMI models have expanded beyond software engineering to help organizations around the world, in any industry, understand their current level of capability and performance and offer a guide to optimize business results.

This report shares results based on an analysis of the performance improvement results from 95 organizations that conducted the first-ever registered CMMI V2.0 appraisals conducted in 2019.

These appraised organizations reported their "before and after" improvement objectives (a total of 735 objectives across the 95 organizations appraised) in the required CMMI V2.0 Performance Report template with an astounding ≈70% achievement success rate for their accomplished improvement objectives (plus an additional 20% on track to achieve), for a total of 90% across key areas such as quality, cost and schedule performance, productivity and more.

Each of these results were identified and achieved by the organizations being appraised against CMMI V2.0, with the resulting performance improvements independently verified by CMMI Appraisal teams.

Analysis of the 2020 performance results is currently underway, and an updated report is targeted for release later this year.

"CMMI V2.0 is a dynamic model with the ability to be updated quickly to include proven new methodologies and practices. By focusing more on meaningful outcomes and linking improvements with organizations' key business goals, V2.0 provides value to organizations that extends well beyond appraisals and maturity ratings."

DR. BIN CONG

CMMI High Maturity Lead Appraiser and Instructor

SECTION ONE:

Purpose

This report will help your organization understand and embrace the value of CMMI V2.0.



Make a Shift

Help organizations shift from a compliance and process-based improvement model to a flexible framework of best practices that provides demonstrable and measurable capability performance improvement results.



Show Results

Show CMMI V2.0 benchmark results for different industries, geographies, types of work, and organizations. Independent CMMI Appraisal teams verify this real-world data.



Understanding

Help current and potential customers understand how CMMI V2.0 can help them dramatically and consistently improve their business and address their critical pain points in product development, service delivery and operations, and supply chain management.



Establish a Baseline

Establish a baseline for ongoing CMMI V2.0 performance analysis and reporting and setting the stage for an outcomes-based key performance indicator (KPI) database and reporting capability.

“The CMMI journey has helped us develop a culture of process transformation with predictable delivery.”

DEVENDER MALHORTA

Vice President and Global Head of Quality and Enterprise Risk Management, Wipro

The Role of the CMMI V2.0 Performance Report

An integral component of CMMI V2.0, a Performance Report is completed by each CMMI Appraisal team during the appraisal, based on the objectives and measurement data the organization provides, and is validated with the organization appraised. The Performance Report is a required deliverable for any CMMI V2.0 Benchmark Appraisal, Sustainment Appraisal, or Action Plan Reappraisal (APR).

- The Performance Report is a planning tool, data collection tool, and cross-checking performance improvement tool to verify business performance 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.
- The Performance Report provides a mechanism to assess tangible and measurable improvement along with meeting model Practice Area intent and value statements and enables the “self-raising performance bar” in the model and appraisal method.
- The Performance Report helps to identify critical performance weaknesses and improvement opportunity “anchor points” and makes performance improvement clear, transparent, intentional, and consistent.

“The CMMI model taught us to think in favor of the customer and be very thorough in terms of delivering our development projects. We work to improve performance from task to task, decision to decisions and project to project.”

JII TOMICECK

CP & General Manager, Honeywell,
Czech Republic



Pivot to a Business Performance Model

The addition of the intent and value statements in CMMI V2.0 is integral to its success. These statements provide a built-in performance improvement focus, which has enabled organizations to obtain key performance results. No other framework or model has built-in and integrated performance improvement requirements or provides a clear evolutionary path to performance.

Value statements are included throughout the CMMI Model, at the Practice Area level and for individual practices. This enables organizations adopting CMMI V2.0 and appraisal teams to focus on the performance differentiators—to move past mere compliance and demonstrate tangible business outcomes.



Intent

The intent statement provides insight into why the Practice Area is important to take into consideration in your process.



Value

The value statement explains the business performance improvement impact achieved when the intent of the Practice Area and individual practices are met.

A Focus on Performance

The CMMI V2.0 product suite has successfully shifted the framework and product suite from a process compliance model to a business performance improvement model. A compliance-only focus results in unintended consequences, including assuming that improved quality and increased performance are guaranteed outcomes – this is NOT true. **There must be a balance between compliance and performance.**

Performance should drive compliance.

New performance practices have been built into the model at all maturity levels to emphasize and focus on improving organizational performance to recognize a more visible ROI. This reflects the modern business climate where performance is key to the success of every organization—no matter its maturity level. With performance now built in at every level, organizations can plan a more methodical and step-by-step path to achieve better performance and High Maturity.

“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.”

SOURCE:

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

Comparison of Compliance vs. Performance-based Approach

COMPLIANCE FOCUS	PERFORMANCE FOCUS
Tendency to be inflexible puts long-term change, innovation and improvement at risk	Fosters lasting organizational innovation, agility and performance improvement
Tendency to become an additional level of administrative overhead without clear value to performance or bottom line	Objective data related to business performance improvement
	Qualitative as well as quantitative indicators

SECTION TWO:

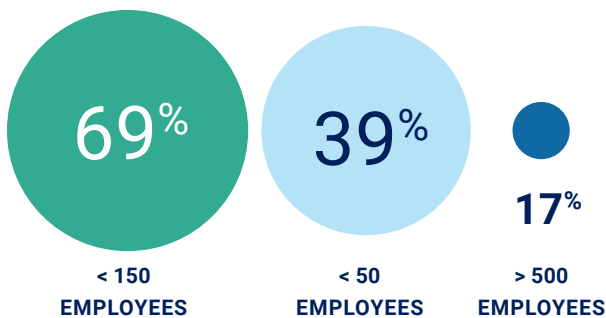
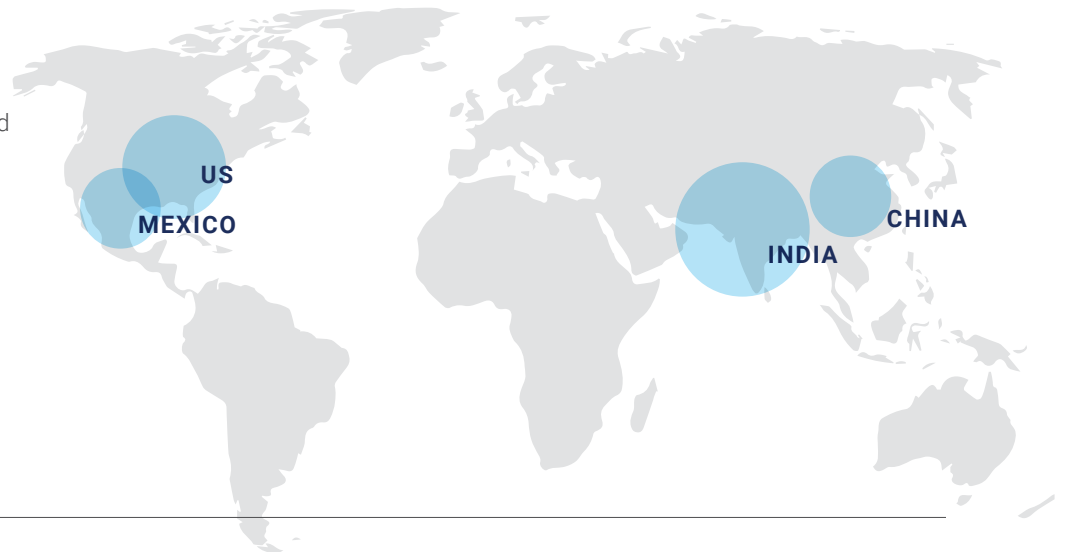
Results

These results are based on 95 organizations targeting a total of 735 performance objectives initially appraised to CMMI V2.0, reported and registered with ISACA and independently verified by CMMI Appraisal Teams.

Demographics of Appraised Organizations

Countries

71.6% of appraisals recorded came from India, US, China and Mexico. See p. 18 in Appendix for complete breakdown.

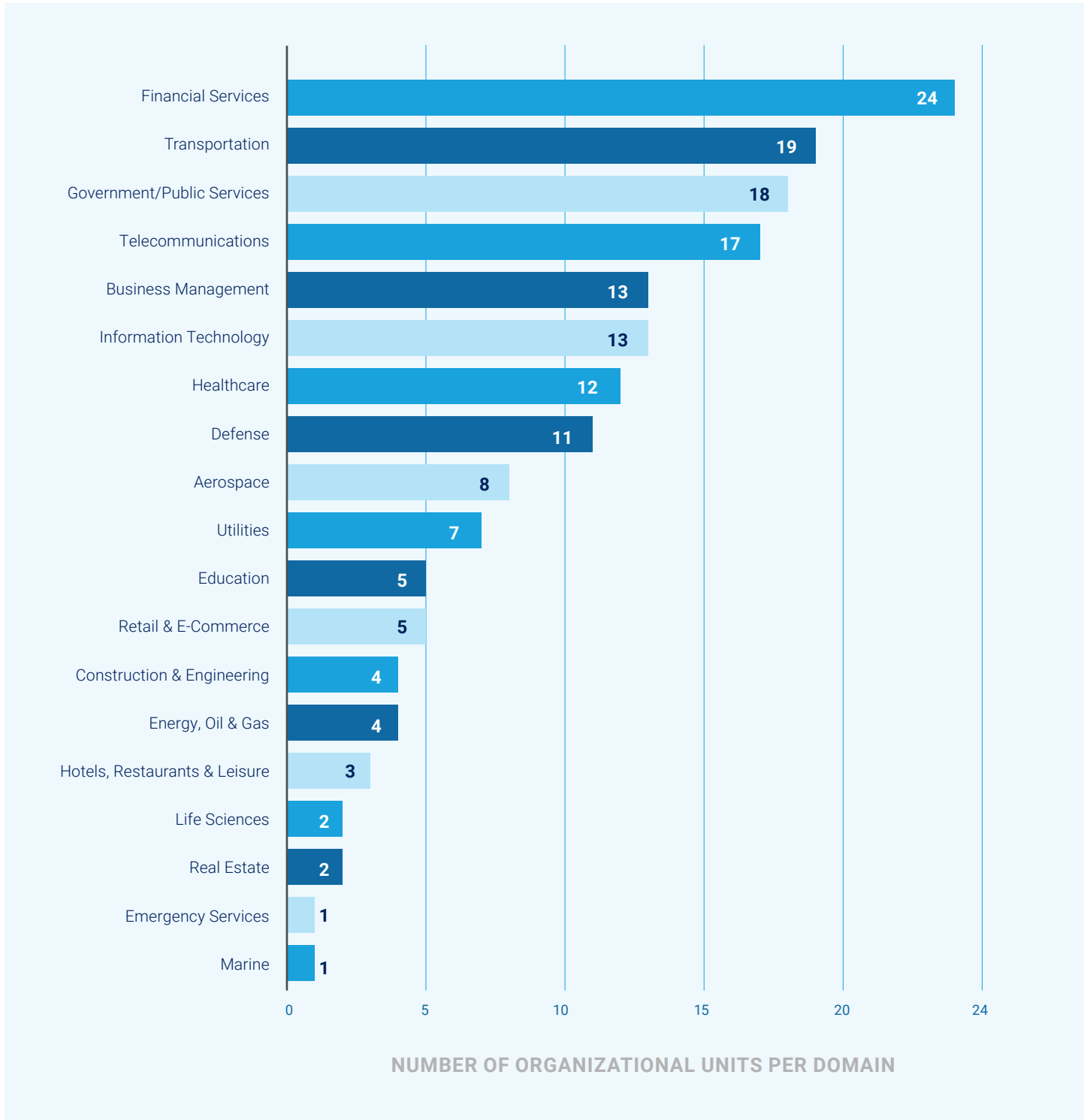


Business Size

A misconception about CMMI is that it can only be seriously adopted by large organizations. However, the vast majority of organizations conducting appraisals can be described as small to medium-sized enterprises. See Appendix p. 18 for complete breakdown.

Industries

One of the exciting features of the impact of CMMI V2.0 is the breadth of its adoption. A broadly diverse set of industries has initially adopted CMMI V2.0. The model is used across a wide range of business domains, not just government or large-scale defense.

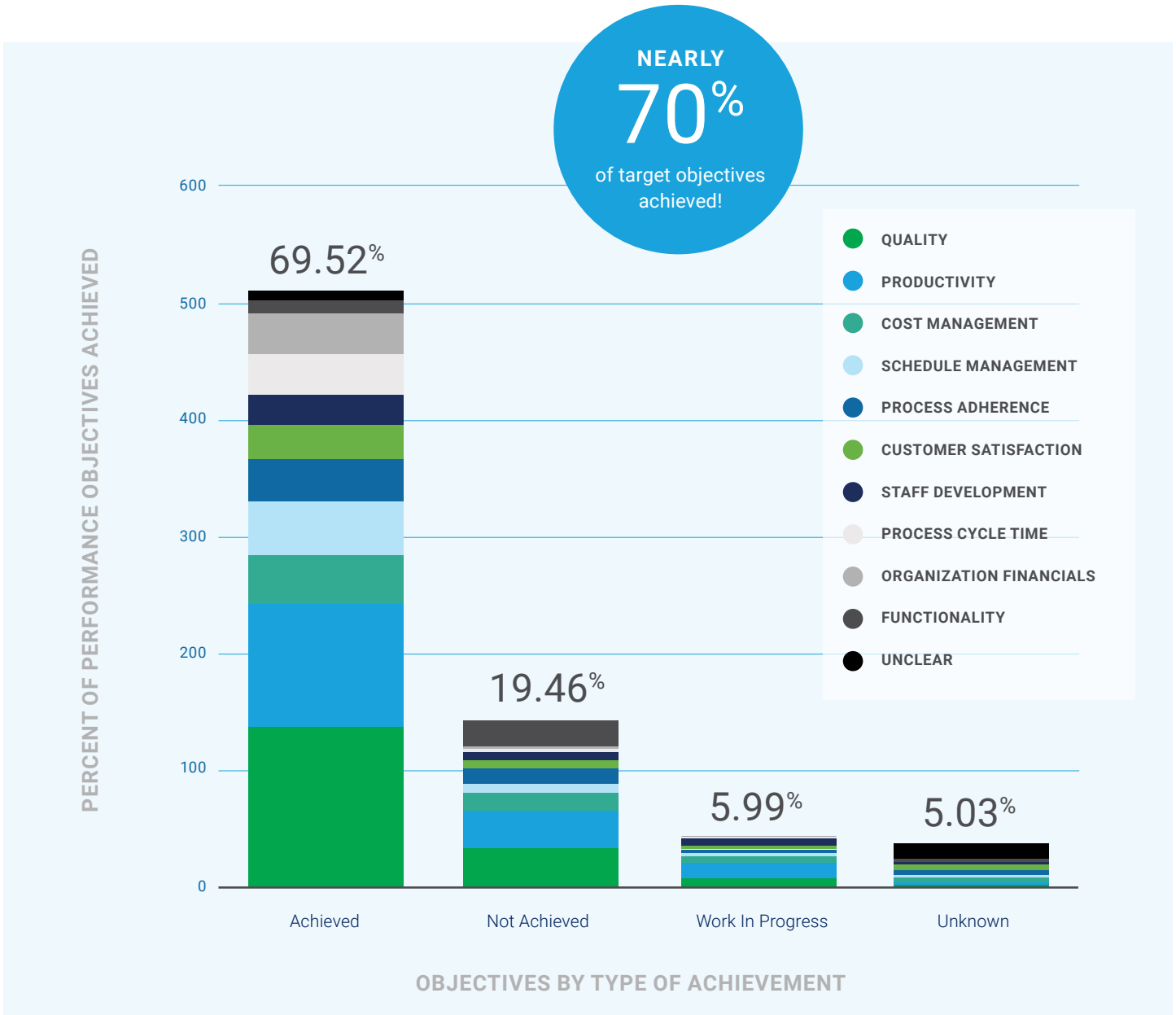


Goal Achievement

CMMI V2.0 consistently enables and promotes organizational business performance achievement.

Nearly 70% of reported objectives were met or exceeded; another 20% have the capabilities to meet in the future. All categories of business performance objectives showed significant performance improvement results. All the improvement goals examined in these appraisals have been set by the organizations themselves. This is an important

distinction versus more compliance-based improvement approaches. In a compliance-based approach, the evaluating body is not necessarily interested in whether the organization derives any benefits from adopting the relevant framework. But here with CMMI V2.0, improving performance is the key driver of change using the model.



Improvement Goal Categories

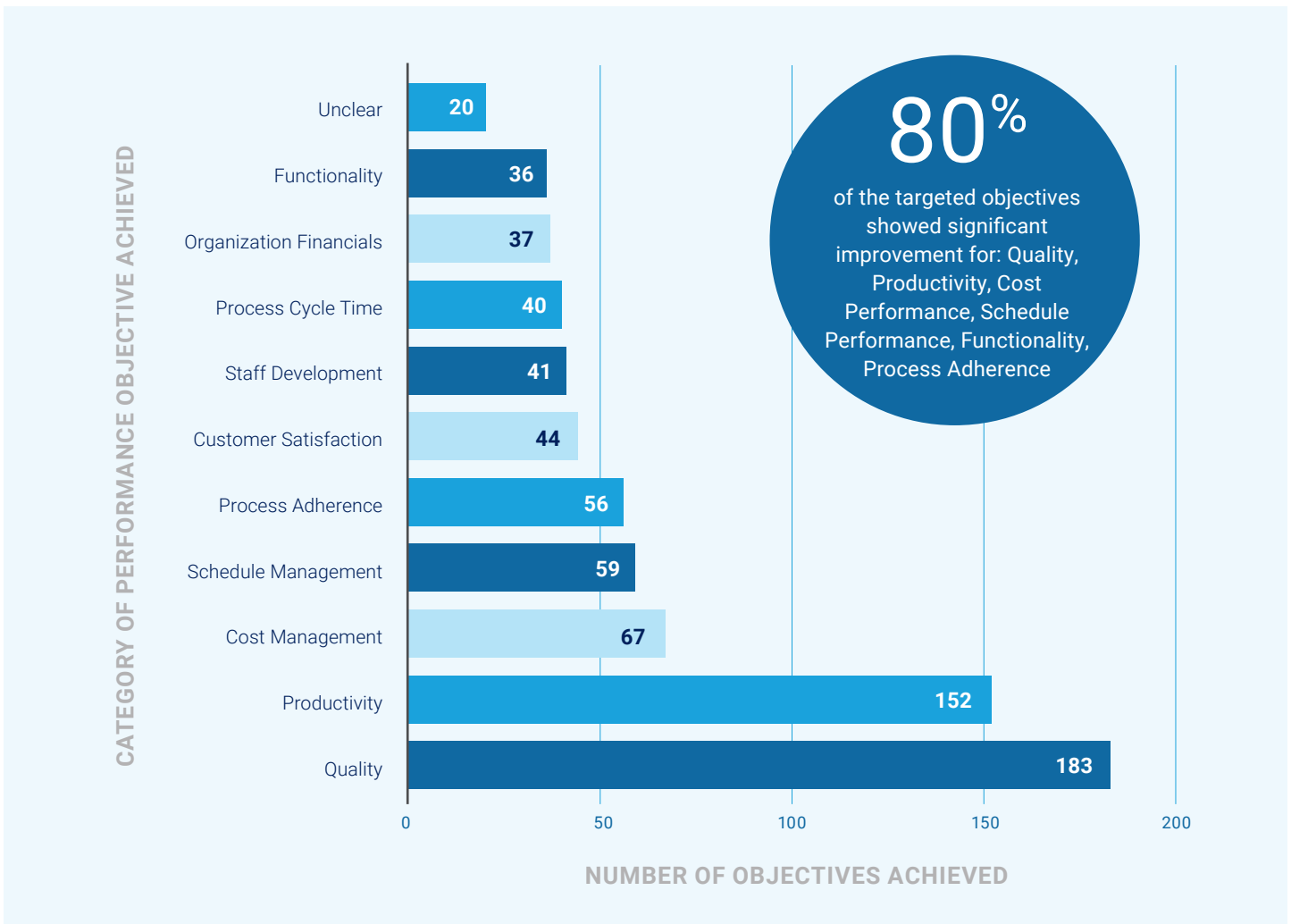
Organizations that implement CMMI V2.0 are consistently realizing tangible performance improvements in multiple aspects and areas of their business.

The most popular improvement categories by a large margin are Quality and Productivity. Together they constitute 46% of all the stated improvement objectives. See Appendix p. 19 for definitions of reported improvement categories.

“Senior management has always seen the value of process improvement as a means to improve performance, keep customers happy, and differentiate Dynanet from its competitors.”

MIKE MCEWEN

Director of Process Improvement, Dynanet



Quality Objectives

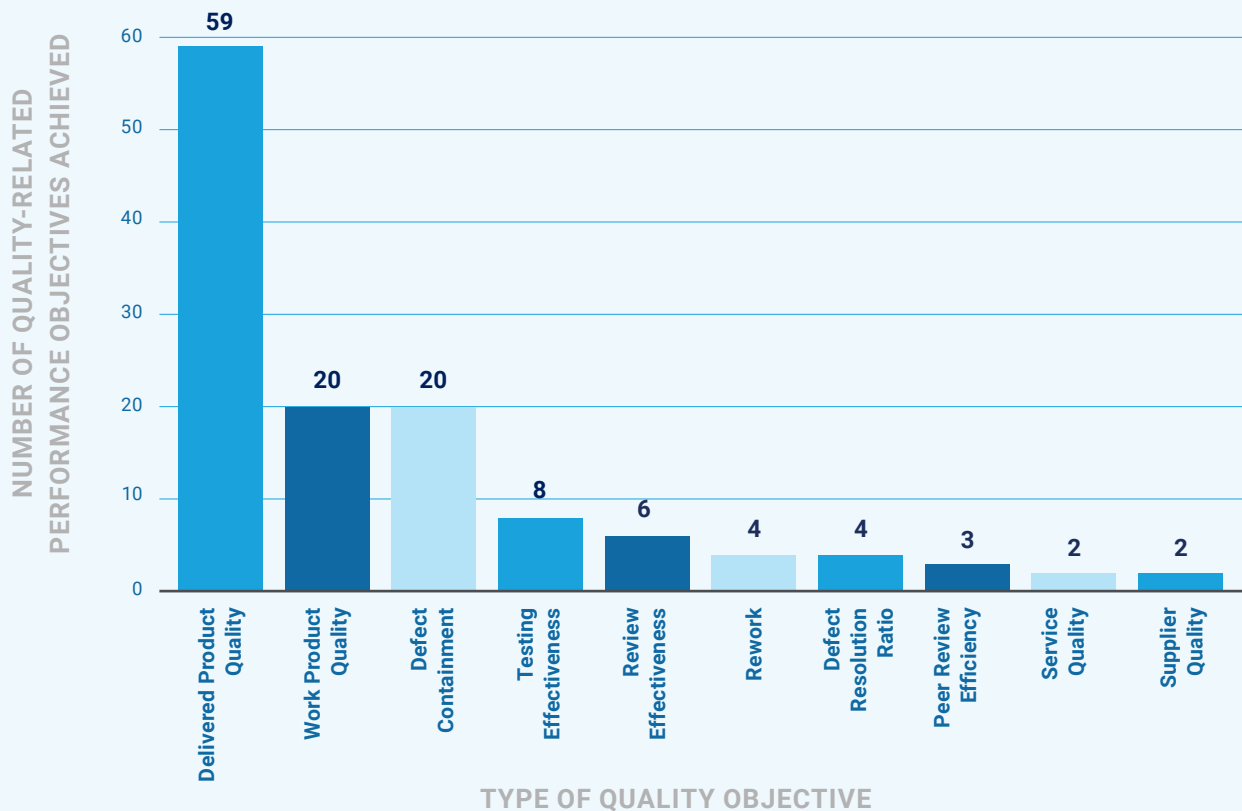
Quality-related objectives represent the biggest targeted area for performance improvement, with significant reductions in delivered defects and increased work product quality and testing effectiveness. These categories of quality performance objectives are critical for methods like DevOps and agile, which can propagate a defect as rapidly as it does a new version of software. See Appendix p. 20 for additional detail.

Not only did quality performance improve, but the ability to detect and prevent defects also improved consistently for those organizations that targeted this area. The top three categories of quality-related improvement objectives achieved account for 80% of the total quality objectives achieved across the 96 organizations appraised.

- Those organizations that had Delivered Product Quality objectives had an average successful performance improvement rate of 25%, with a maximum level reported of 70%.
- Those targeting work product quality saw an improvement average of almost 40%, with an upper maximum of 90% reported and verified.
- Those looking to address Defect Containment saw improvement average of 23%, with maximum of 30%.

“Quality, like integrity, is simply non-negotiable.”

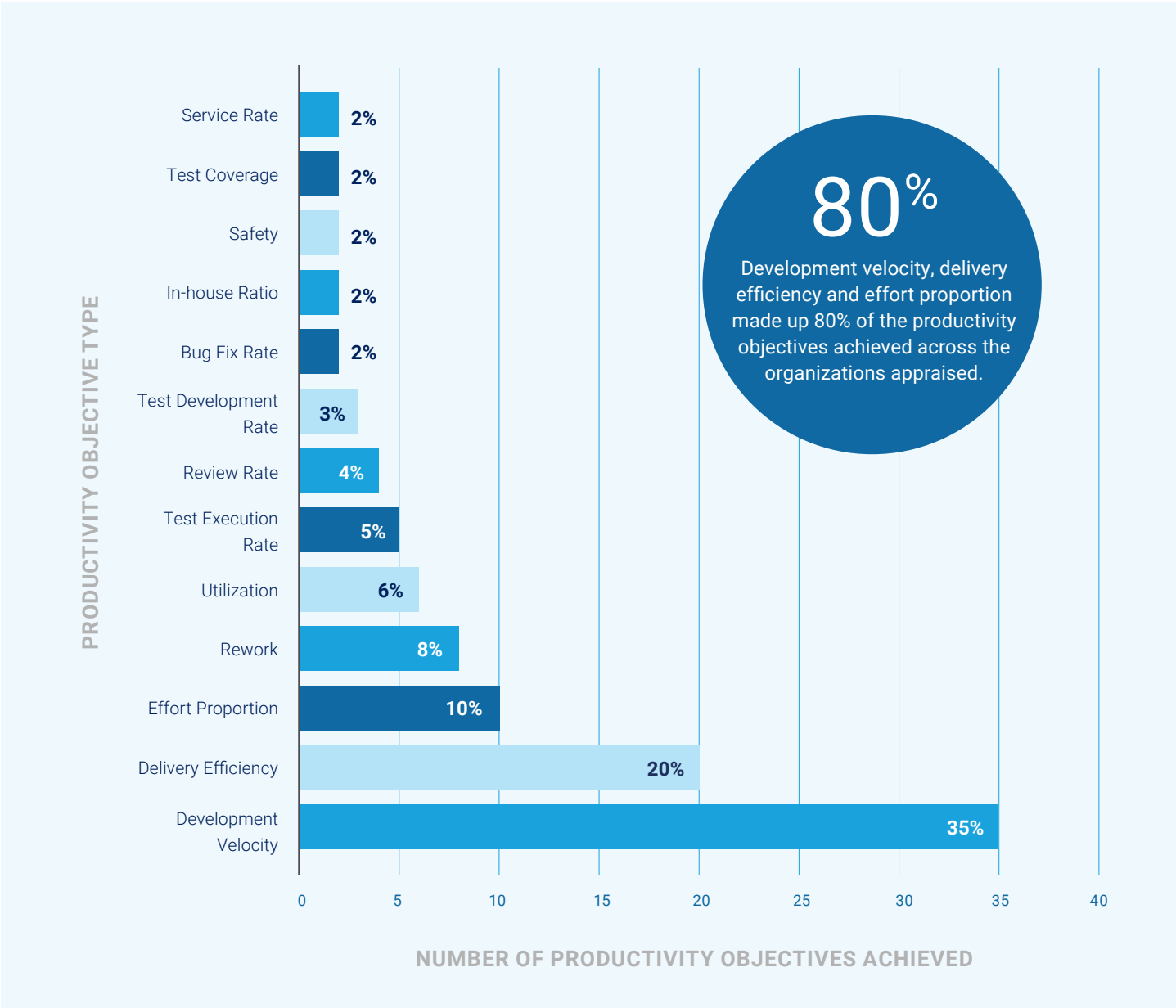
AZIM PREMJI
Chairman, Wipro



Productivity Improvements

Productivity improvements include 13 categories. Development velocity, defined as the amount of product or work product produced per unit effort or time, is critical for time-to-market. These numbers are directly related to streamlining critical development process performance and process automation, e.g., automated testing and development processes and DevOps. See p. 20-21 in Appendix for definitions and additional information.

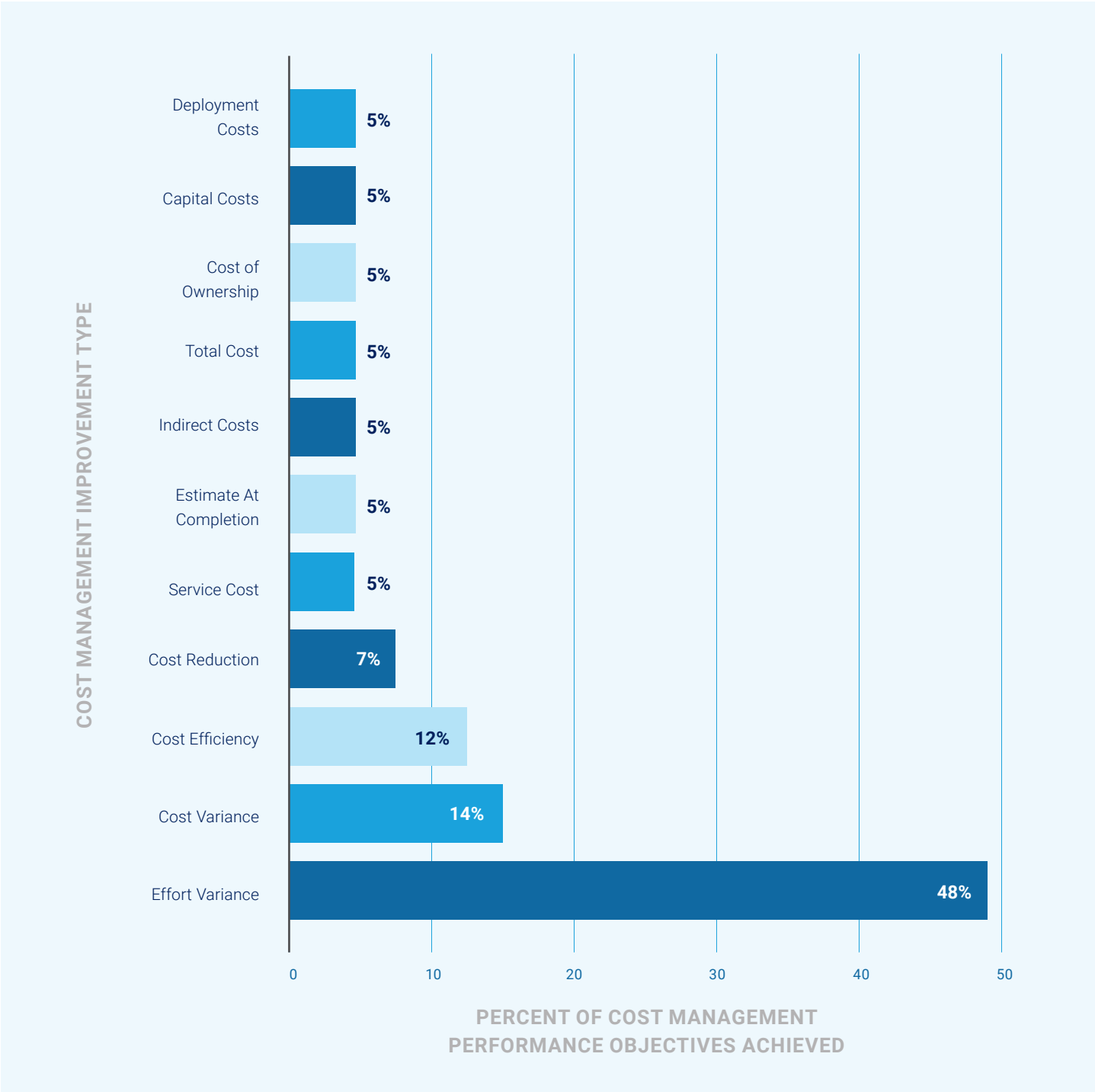
- Average for development velocity improvement is 13%, with a maximum reported improvement of nearly 40%.
- Average for rework reduction was 18.7%, but with a significant maximum of almost 60%.
- Collectively, overall productivity improvements across the 96 organizations was reported as high as 58.3%.



Cost Management Improvements

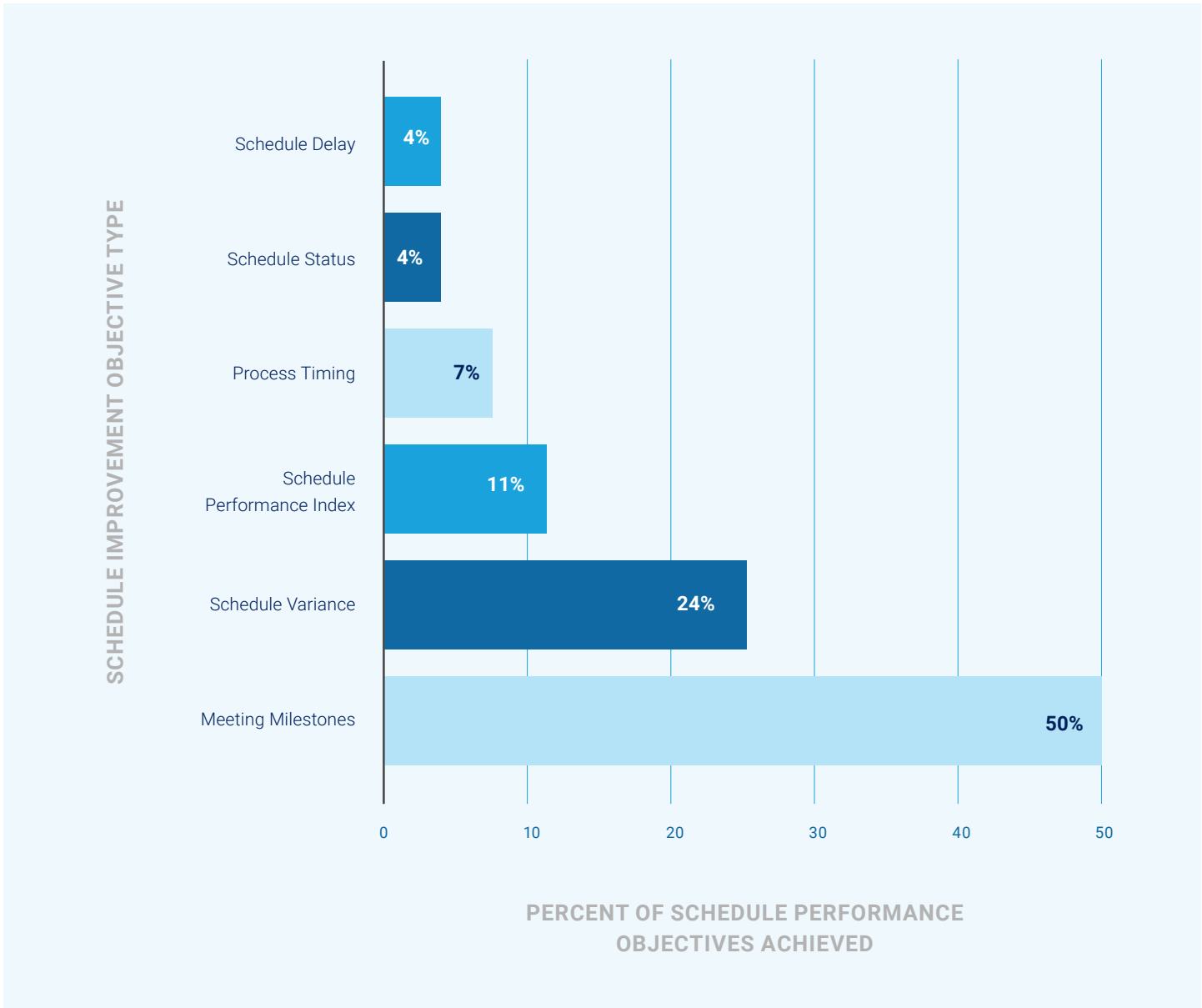
Forty-two of the objectives reported and verified addressed some level of cost reduction or similar improvement. Of the 11 objective categories, effort variance saw the most improvement opportunities, with

a maximum of 75% improvement achieved for those 20 objectives reported. See Appendix p. 21 for definitions and additional details.



Schedule Performance Improvements

Fifty-six of the reported objectives addressed various schedule improvements, with a clear increase in consistently meeting milestones and reducing schedule variance (on-time delivery). Within the Meeting Milestone category of objectives, a whopping 95% improvement was achieved and verified. See definitions in Appendix p. 22.





Key Takeaways

- The data is very clear—adopting CMMI V2.0 yields tangible and consistent performance results across multiple types of industries, organizations and geographies.
- CMMI V2.0 enables a proven and effective approach for performance-based improvement and enables innovation, digital transformation and other complementary methods such as agile and DevOps.
- CMMI V2.0's focus on persistent and habitual performance improvement sets it apart from any other standard or model; this helps to ensure that the performance improvement is lasting.



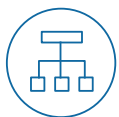
Major Content Releases in 2021

- New Managing Security and Safety Capability Area with three new Practice Areas, covering areas such as cybersecurity and CMMC context specific information.
- A brand-new Practice Area on Enabling Virtual Solution Delivery (already released) and virtual certification role that contains best practices on virtual delivery for remote workforces.

SECTION THREE:

Who Uses CMMI?

For more than 25 years, thousands of high-performing organizations have achieved sustainable business success through CMMI adoption and demonstrated their ability as capable business partners and suppliers.



>10k

ORGANIZATIONS



12

NATIONAL
GOVERNMENTS



403

PARTNERS



106

COUNTRIES



3,379

APPRAISALS



10

LANGUAGES

SOME OF THE WORLD'S MOST RESPECTED ORGANIZATIONS USE CMMI



Booz | Allen | Hamilton®

Honeywell



NORTHROP
GRUMMAN

SIEMENS
Ingenuity for life



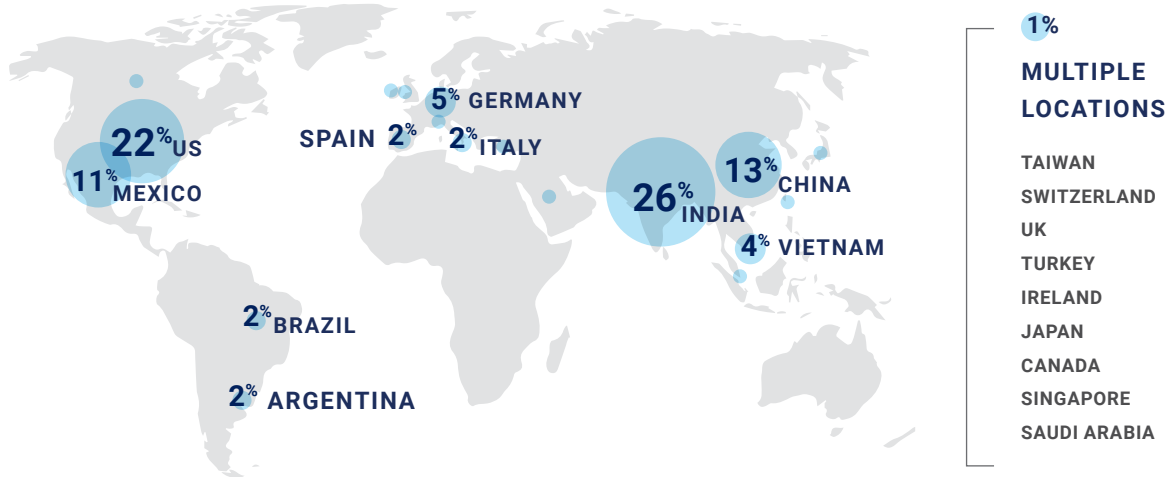
SECTION FOUR:

Appendix

Who Uses CMMI?

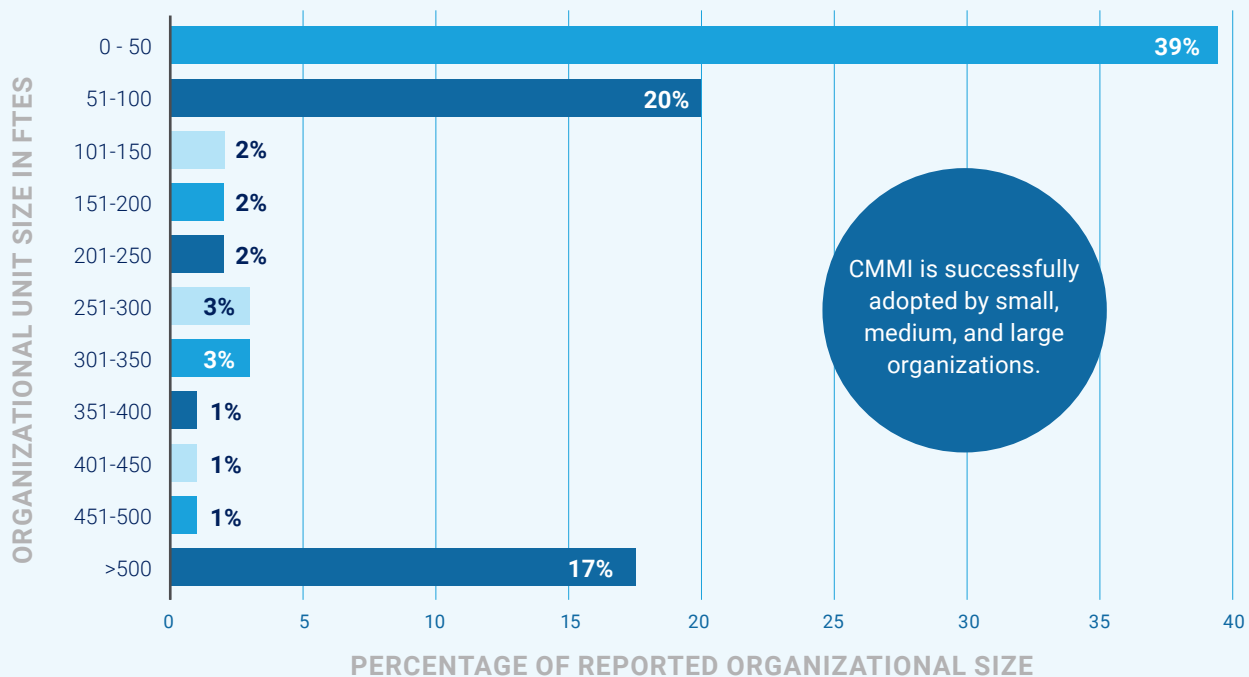
Demographic Breakdown

Of the 96 reported appraisals, the top four countries for CMMI V2.0 adoption include India, the US, China and Mexico.



Breakdown of Business Size

Of the organizations appraised, nearly 60% are small to medium-sized organizations (100 FTEs or fewer). However, 17% were large organizations. This breaks the previous myth that CMMI is only applicable/useful to large organizations when the fact is CMMI V2.0 works for small, medium and large organizations.



Results

Reported Improvement Goal Categories

Definitions

See p. 11 for additional information.

IMPROVEMENT CATEGORY	DESCRIPTION
Quality	Quality improvements are concerned with making sure that the delivered solution, product or service performs as the customer expects and errors/defects are kept to a minimum.
Productivity	This generally refers to how well and effectively an organization is using its resources to delivery its solutions, products or services.
Cost Management	Emphasis in this category is on reducing the cost of developing and delivering its solutions, products or services.
Schedule Management	How good and consistent is the organization at meeting agreed-upon milestones?
Process Adherence	Are people using and following the processes correctly?
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 improvement that perception.
Staff Development	Having the right human resources with the needed knowledge and skills, and capacity to deliver the organization's solutions, products and services.
Process Cycle Time	In some ways, this may be a subcategory or contributor to schedule management, but the objectives in this category are directly aimed to improve the speed of the organizational processes.
Organizational Financials	The bottom line! How well and consistently are revenue and profitability targets being met?
Functionality	What is the solution, product or service supposed to do? Did you build, deliver or operate the right thing and did you build, deliver or operate the thing correctly?
Unclear	The objectives as written were not clear in terms of tangible, targeted and achieved results.

Improvements in Quality Performance

This chart is an analysis of the top three Quality Improvement Objectives. It conveys that not only did quality performance improve, but the ability to detect and prevent defects also improved consistently. See p. 12 for additional information.

	DELIVERED PRODUCT QUALITY	WORK PRODUCT QUALITY	DEFECT CONTAINMENT
Minimum Improvement	1.87%	6.00%	10.00%
Maximum Improvement	86.50%	88.00%	70.00%
Mean Improvement	25.46%	39.06%	23.01%
Standard Deviation of Improvement	26.71%	32.88%	18.98%
Median Improvement	12.50%	26.13%	20.00%

Productivity Improvement Category Definitions

See p. 13 for additional information.

CATEGORY DEFINITIONS	DESCRIPTION
Development Velocity	Amount of product or work product produced per unit of effort or time
Delivery Efficiency	Proportion of planned work completed
Effort Proportion	The proportion of total effort or time a task or phase consumes
Rework	The proportion of total time or effort rework consumes
Utilization	The proportion of total effort or time that a resource is gainfully employed
Test Execution Rate	The number of tests or test cases executed per unit of effort or time
Review Rate	Amount of product or work product reviewed per unit of effort or time
Test Development Rate	The number of tests or test cases produced per unit of effort or time
Bug Fix Rate	Turn-around effort or time per bug fix
Service Rate	Amount of service delivered per unit of effort or time
Safety	Amount of injuries per unit of effort or time

Productivity Improvements

This chart is an analysis of the top two Productivity Improvement Objectives. Development velocity or speed is critical for time-to-market. Efficient delivery and reduced rework were also clearly improved. See p. 13 for additional information.

	DEVELOPMENT VELOCITY	EFFORT PROPORTION IMPROVEMENT
Minimum Improvement	1.74%	1.20%
Maximum Improvement	38.00%	58.30%
Mean Improvement	13.27%	19.74%
Standard Deviation of Improvement	9.46%	16.06%
Median Improvement	10.88%	13.95%

Cost Management Category Definitions

See p. 14 for additional information.

CATEGORY DEFINITIONS	
Effort Variance	Difference in planned and actual effort as a percentage of planned effort
Cost Variance	Difference in planned and actual costs as a percentage of planned costs
Cost Efficiency	Cost Performance Index
Cost Reduction	The degree to which actual costs are reduced
Service Cost	Service usage costs
Estimate at Completion	The forecasted cost of the work, as it progresses
Indirect Costs	Costs that are not directly accountable to the project or service work
Total Cost	The sum of direct and indirect costs
Cost of Ownership	Estimate of all costs including infrastructure costs necessary to support a product, service or solution
Capital Costs	Fixed, one-time expenses incurred on the purchase of assets
Deployment Costs	Costs incurred in putting a product or service into the appropriate field of operations.

Effort Variance Overall Cost Management Improvements

Analysis of Overall Cost Management Improvement Objectives and Development Velocity demonstrates high-predictability and consistency of cost management results with CMMI V2.0. See p. 14 for additional information.

	DEVELOPMENT VELOCITY	OVERALL COST MANAGEMENT IMPROVEMENTS
Minimum Improvement	10.00%	10.00%
Maximum Improvement	75.93%	75.93%
Mean Improvement	39.38%	34.53%
Standard Deviation of Improvement	25.07%	23.62%
Median Improvement	44.17%	35.02%

Schedule Performance Definitions

See p. 15 for additional information.

CATEGORY DEFINITIONS	
Meeting Milestones	Proportion of target dates (e.g., milestones or delivery dates) that are achieved
Schedule Variance	Difference in planned and actual dates as a percentage of planned date
Schedule Performance Index	Earned value/planned value
Process Timing	The proportion of occasions in which a required duration for a process or activity is achieved
Schedule Delay	Number of days delayed (difference between target and actual)
Schedule Status	Qualitative status measure

What is the CMMI V2.0 Model?

CMMI V2.0 helps organizations shift from a compliance and process-based improvement model to a flexible framework of best practices that provides demonstrable and measurable capability performance improvement results.

CMMI's performance improvement model has helped thousands of globally recognized companies over the last 25+ years—including many Fortune 500 organizations. CMMI V2.0 adds to the legacy as a trusted source of proven best practices. In addition, through the new online platform, V2.0 will be continuously updated to reflect changing needs, helping businesses perform their best long into the future.

Integrated Product Suite

CMMI V2.0 offers an integrated product suite consisting of five components, that when used together provide a clear and proven path to achieving your business objectives.

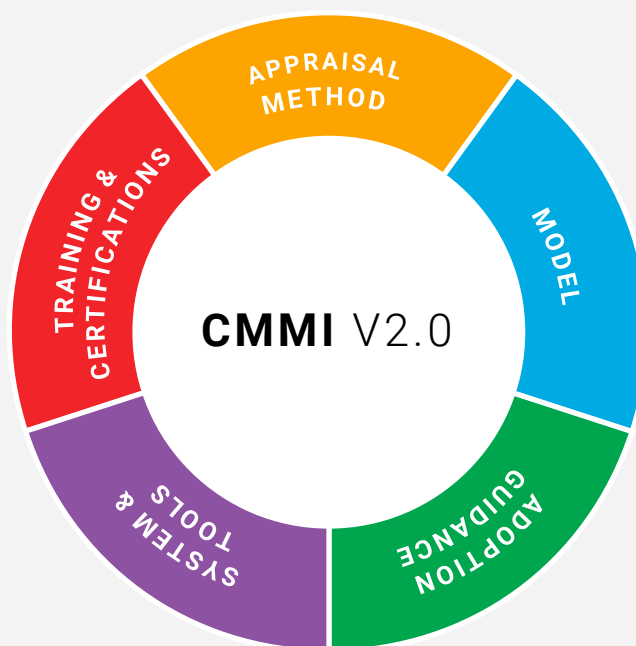
Training and Certification: Updated training has modular components with virtual and in-person models. Provides performance-focused content and exercises. More learner-focused and learning objective oriented.

Appraisal Method: A new appraisal method helps to increase reliability while reducing overall costs. 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: Smooth transition from CMMI V1.3 to V2.0. Easy onboarding for new adopters to get started with CMMI V2.0.

Systems and Tools: Redesigned system provides interactive user experience with model, appraisal method and performance reporting resources.



Build on Business Performance With CMMI V2.0 Improvements

In addition to directly addressing capabilities and performance improvement, the model also had numerous other improvements for readability, simplicity and a reduction of the overall size of the model without losing any critical content:

- Focused on use of plain language to make adoption easier
- Improved Flesch-Kincaid Reading Ease from 18.7 in V1.3 to 22.9 in V2.0
- Reduced Flesch-Kincaid Grade Level from 14.9 in V1.3 to 13.2 in V2.0
- Decreased use of passive voice from 32.3% in V1.3 to 18% in V2.0
- V1.3 Total Number of Specific Practices–500 - V2.0 39.2% practice reduction (64.5% including Generic Practices)
- Enables quicker translations
- Aligns the CMMI content with simpler architectural elements to make it easier to understand, integrate with other adopted methodologies like ISO, CMMC, etc.



Additional Success Stories



WIPRO

- Tailored organizational processes and the steps needed to embrace and institutionalize the improvements to make them sustainable
- Improved Critical to Quality metric and business objective performance
- Identified root causes and implemented processes to sustain revenues, retain customers, and increase growth, customer satisfaction, and operating margins
- Strengthened processes through a focus on Governance

[Read the Wipro Case Study](#)



DYNANET

- **92% decrease** in the average number of high-priority defects found within 30 days after delivery of a quarterly software release
- **64% improvement** in the accuracy of effort estimates
- **52% decrease** in the rate of all software defects found from beta testing phase through warranty period
- **41% decrease** in the time to resolve questions about possible defects

[Read the Dynanet Case Study](#)



CELONOVA BIOSCIENCES, INC.

- World's first Capability Level Benchmark appraisal!
- **27% reduction** in time period - significant reduction in complaint time cycle.
- Selecting appropriate metrics helped visibility within the organization and ensured employee collaboration
- Utilizing the MDDAP framework supported the already vigorous quality culture at CeloNova
- Each employee achieved a full sense of ownership and accomplishment in their everyday performance

[Read the CeloNova Case Study](#)

About ISACA

For more than 50 years, ISACA® (www.isaca.org) has advanced the best talent, expertise and learning in technology. ISACA equips individuals with knowledge, credentials, education and community to progress their careers and transform their organizations, and enables enterprises to train and build quality teams that effectively drive IT audit, risk management and security priorities forward. ISACA is a global professional association and learning organization that leverages the expertise of more than 150,000 members who work in information security, governance, assurance, risk and privacy to drive innovation through technology. It has a presence in 188 countries, including more than 220 chapters worldwide. In 2020, ISACA launched One In Tech, a philanthropic foundation that supports IT education and career pathways for under-resourced, under-represented populations.

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