

## Case Study

# Whale Cloud Continues to Improve Business Performance Through Efficiency and Agility

## The Business Need

Whale Cloud is a global organization specializing in cutting-edge technology solutions. Its Software Research & Development group is the heart of their innovative spirit and competitive edge. This group needed to identify process improvements to enhance the customer experience and reduce defects. Specifically, they wanted to determine how to improve the team's capacity demand, including efficiency and capacity visualization. In addition, the Delivery group wanted to determine how to speed its delivery processes, while maintaining quality continuously.

Whale Cloud was not new to CMMI: it first achieved CMMI Development (CMMI-DEV) Maturity Level 5 in 2014. Senior management was already invested in promoting the implementation of CMMI throughout the organization to optimize business processes, enhance the personal growth of team members and improve the customer experience. They knew that CMMI would help them build better business practices to enhance customer value.

The initial goals Whale Cloud established were:

- Reduce change requests
- Reduce defect leakage rate
- Increase use of digital applications by 16%
- Improve employee retention and satisfaction



## Company Background

Founded in 2003, Whale Cloud Technology Co., Ltd. ("Whale Cloud") is a leading technology company specializing in telecom software development and delivery, cloud computing, big data analytics, AI-enabled service operations, IoT, smart city solutions and other services, including planning and consulting.

Based in Nanjing, China, the company provides services to various industries including telecoms, governments and enterprises, and serves more than 250 customers worldwide. Whale Cloud's 20 years of expertise in the Information and Communication Technology field and service providers leverage the accessibility of data intelligence and AI intelligence's products and technologies to enhance the customer experience to meet ever-changing customer requirements.



Whale Cloud



## The Solution

At Whale Cloud, the maturity of its software capability was essential, as was a commitment to continuous improvement. Through the measurement and analysis of production capacity and other indicators, they identified areas for improvement and continued to use CMMI as the basic strategy to achieve these process improvement goals.

The original capabilities targeted for improvement were:

- Ensuring Quality
- Engineering & Developing Products
- Delivering & Managing Services
- Planning & Managing Work
- Managing Business Resilience
- Managing the Workforce
- Supporting Implementation
- Sustaining Habit & Persistence
- Improving Performance

**“Through our years of CMMI adoption our company built a quality management and process improvement system. CMMI now guides us to pay more attention to the realization of customer value while ensuring quality and process continuous improvement.”**

**Zhongjun Bao**  
Chief Operating Officer, Whale Cloud

## Key Performance Goals Achieved

Whale Cloud made significant improvements and progress during their latest CMMI appraisal. **They dramatically improved two of their stated objectives: reducing change requests and defect leakage rates**, which improves organizational efficiency, while improving customer satisfaction. This improved product quality, increased production capacity and efficiency by reducing rework and met internal efficiency goals.

One of Whale Cloud’s most impactful new innovations was the development of a “One Click Upgrade” link in the R&D process. This tool dramatically improves the traditional upgrade process (usually a time-consuming manual process, prone to human error and delay), and integrates automation throughout the process. This new process automatically generates the release package, automatically imports the content of the release package at the customer site, including programs, scripts, and configurations, adding automatic detection and verification to minimize human participation and reduce the probability of error. “One Click Upgrade” has now been incorporated into all Whale Cloud products and significantly speeds upgrades to market, while reducing error rates.



*The “One Click Upgrade” innovation dramatically improved speed to market and reduced error rates.*



**The Engineering Process Group (EPG) is a critical element of Whale Cloud’s success:** They are the internal cross-functional group responsible for Whale Cloud’s process improvement, integrating CMMI practices, agile and other methodologies to improve the organization’s process improvement work. Some of the specific developments to improve capacity and reduce defect leakage included:

- Increased overall efficiency by 10%.** This CMMI appraisal was conducted during the COVID pandemic when most employees were telecommuting. During this time, Whale Cloud released several R&D Kanban projects, which improved the transparency of the R&D process and encouraged team members to reconnect and catch up with each other.
- Improved team demand and capacity.** The EPG combined CMMI, Agile, IPD, lean and other methodologies to ensure the most effective implementation of process improvement.
- Organizational structure adjustment.** Cross-regional integration of R&D team manpower and allows for a more flexible allocation of resources across the entire organization, improving productivity and efficiency.
- Internal digital transformation measures.** Based on LEAN principles, several measures were implemented during the COVID stay-at-home orders including project and team billboards to understand quality objectives and real-time progress.

Total Capacity (Reduction in Change Requests)			
	Pre-Improvement Quality and Process Performance Objectives	Goals	Post-Improvement Results of Quality and Process Performance Objectives
R&D Group 1	28.66 hours	≤ 25 hours	<b>23.9 hours</b>
R&D Group 2	28.76 hours	≤ 25 hours	<b>23.3 hours</b>
R&D Group 3	32.26 hours	≤ 28 hours	<b>27.96 hours</b>
R&D Group 4	28.69 hours	≤ 25 hours	<b>23.19 hours</b>

Defect Leakage Rate (%)			
	Pre-Improvement Quality and Process Performance Objectives	Goals	Post-Improvement Results of Quality and Process Performance Objectives
R&D Group 1	20.87%	≤ 10%	<b>8.05%</b>
R&D Group 2	25.82%	≤ 10%	<b>8.12%</b>
R&D Group 3	8.04%	≤ 5%	<b>3.50%</b>
R&D Group 4	19.74%	≤ 10%	<b>9.17%</b>



### IMPROVING CUSTOMER DEVELOPMENT CYCLE THROUGH ADOPTION OF NEW DIGITAL PLATFORM

Whale Cloud introduced a new digital customer platform using a DevOps model to give customers new features like remote delivery, one-touch deployment, and one-touch release. These new tools embraced cloud computing, big data and cloud native distributed systems, giving customers increased flexibility and reducing service interruption time.

Version Deployment Cycle	
Pre-Improvement Quality and Process Performance Objectives	Post-Improvement Results of Quality and Process Performance Objectives
≤24 Hours	<b>1.2 hours</b>

### REMOTE DELIVERY DURING COVID: TURNING ADVERSITY INTO OPPORTUNITY

In early 2020 as COVID-19 spread across the globe, Whale Cloud’s delivery engineers, who usually worked at clients’ onsite locations, were unable to travel. This risked major product delays, an unacceptable situation. Whale Cloud immediately implemented a fully-digital, remote delivery system, allowing delivery engineers to do their jobs from thousands of miles from their clients’ locations. Making the switch from an onsite to a remote delivery system was a complex process. It required a complex set of methodologies for remote delivery, including organization support, personnel composition, demand research, installation and deployment, and much more. While the pandemic forced this switch to remote delivery, Whale Cloud realized that this change improved delivery for clients, reduced costs and improved efficiency throughout the organization. It has now adopted remote delivery as the organization’s standard.

User Growth Rate of System (YOY customer system user growth rate)	
Pre-Improvement Quality and Process Performance Objectives	Post-Improvement Results of Quality and Process Performance Objectives
≤ 10%	<b>16.00%</b>

### IMPROVING EMPLOYEE RETENTION AND PERSONAL GROWTH

Whale Cloud understands that helping each employee grow and improving employee training will lead to increased retention and employee satisfaction. This has led to two specific programs: new opportunities for Whale Cloud clients to increase revenue through new development tools, and increased employee retention, including a more streamlined training process, enabling new employees to join their production teams faster.

Turnover Rate of Key Employees	
Pre-Improvement Quality and Process Performance Objectives	Post-Improvement Results of Quality and Process Performance Objectives
≤ 10%	<b>4.76%</b>

Training Cycle for New Employees	
Pre-Improvement Quality and Process Performance Objectives	Post-Improvement Results of Quality and Process Performance Objectives
≤ 5 Months	<b>≤ 2 Months</b>



## Lessons Learned

As a long-time CMMI adopter, Whale Cloud realized significant improvements throughout the entire organization during this appraisal period that dramatically impacted product quality, delivery and improved customer and employee satisfaction.

Highlights included:

- **R&D:** A new “One Click Upgrade” process that automated product upgrades
- **Delivery:** Shifting from onsite product delivery to fully remote product delivery during COVID-19, now an organizational standard
- **Employee Retention:** Additional employee training and a more transparent incentive system improved employee morale and satisfaction

In addition, Whale Cloud also implemented a more sophisticated, centralized and automated data analysis process, to improve planning and on-going process improvement. They began by transitioning from a time-consuming manual, Excel-based data analysis by engineers from a variety of siloed data sources to building a centralized data center. This center consolidated all data sources into one unified data center, allowing for easier access and analysis by all business units. Whale Cloud then implemented a series of automated data analyses, tailored for the needs of each business unit.

This helped both Whale Cloud and its customers speed their digital transformation by improving the access and maturity of its data management capabilities, setting the stage for continued growth and improvement. Today, Whale Cloud continues its quest to provide its customers with the latest insights, trends and solutions that help to drive business development and new sources of revenue.



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ISACA's CMMI enables organizations to elevate and benchmark performance across a range of critical business capabilities, including product development, service excellence, workforce management, data management, supplier management, and cybersecurity. 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.