Case Study

ASELSAN MGEO: Successfully Migrating to CMMI V2.0 during the COVID-19 Pandemic

The Business Need

ASELSAN MGEO was founded on the principles of continuous improvement and development of process quality, using ISO 9001, AQAP-2310, AQAP-2110, AQAP-2210, AS 9100 standards. In 2011, the organization decided to further improve its design, project and management processes with CMMI for Development (CMMI-DEV) Maturity Level 3, which defined both best improvement practices and principles. Because 60% of ASELSAN MGEO's staff are engineers, the improvement of the structure and management of internal processes affected everyone in the organization, particularly the programs, engineering and quality departments.

In addition, ASELSAN MGEO continued their improvement journey through the pandemic, and was able to migrate from CMMI V1.3 to CMMI V2.0 while operating virtually.

The Solution

ASELSAN MGEO chose CMMI-DEV in 2011 as their process improvement guide. Upgrading from CMMI V1.3 to V2.0, along with their digital transformation by using process architecture tools around business processes, has increased process fidelity and ease-of-use across the organization. During the migration from CMMI V1.3 to V2.0, various on-going process improvement efforts in the organization were reviewed with a new set of eyes, which ensured alignment between these initiatives and V2.0 adoption. In order to guarantee institutional knowledge of CMMI, new appraisal team members (ATMs) were trained, while the experienced ATMs were upgraded to CMMI V2.0.

Company Background

ASELSAN is a company of the Turkish Armed Forces Foundation, established in 1975 in order to meet the communication needs of the Turkish Armed Forces by national means. It is now the largest defense contractor in Turkey, with over 7000 employees, and a top global defense contractor. ASELSAN specializes in an extensive array of communication and information technologies, radar and electronic warfare, electro-optics, avionics, unmanned systems, land, naval and weapon systems, air defense and missile systems, command and control systems, plus transportation, security, traffic, automation and medical systems.

Today ASELSAN has become an indigenous products exporting company, investing in international markets through various cooperation models with local partners and 48th company in the top defense contractor list in the world (Defense News Top 100).

ASELSAN MGEO, one of the five business sectors affiliated to the President & CEO of ASELSAN Electronic Industries Inc., performs design, manufacture, sale and after-sales services of Microelectronics, Electro-Optical Systems, Guidance Systems, Navigation Systems and Avionics products. ASELSAN MGEO has 2000 employees.

ASELSAN accelerates technological innovations through extensive scientific research and development, deep engineering capabilities, an advanced infrastructure and an emphasis on process improvement.

For more information, go to **aselsan.com.tr**

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The capabilities targeted for improvement included:

- Ensuring Quality
- Engineering & Development
- Selecting and Managing Suppliers
- Planning & Managing Work
- Managing Business Resilience
- Managing the Workforce
- Supporting Implementation
- Sustaining Habit & Persistence
- Improving Performance

Key Performance Goals Achieved

First, the on-time completion ratio of planned improvement activities increased from 67% to an astounding 91%!

Despite the pandemic's challenges, effective implementation of CMMI processes and best practices, organizational risk management and the leadership of upper management contributed to the organization's success.

In addition, digital transformation of processes improved from 30% to 100%.

Transferring the processes from Word documents to a hierarchical flowchart-based tool helped improve the infrastructure and increased the adoption of new processes by the employees. This success helps to demonstrate that the processes are persistently and habitually used.

> **"Our processes are one of the most valuable assets for our company, and CMMI guides us to improve and institutionalize these assets throughout the organization."**
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> **Dr. Halidun Fildiş**
> **MGEO Quality Management Director**

> **"With this journey, we built a culture of quality with the guidance of CMMI's best practices. In recognition of CMMI's valuable contribution to our processes, we achieved tool-based process management as well as the improvement of our well-structured processes. Quality improvement is a never-ending process for ASELSAN MGEO."**
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> **Mustafa Kaval**
> **ASELSAN MGEO**
> **Vice President and President**
> **Business Sector**

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ASELSAN MGEO Identified and Solved Key Performance Issues

Target Measurement	Actual Measurement Goals	Pre-Improvement Results 2017	Post Improvement Results 2020	Summary of Quantifiable Organizational Benefits	
Increase effectiveness	Number of digitized workflows in Project Management Process	1 digitized workflow	5 digitized workflows		Improved data compliance and resource usage effectiveness
Increase effectiveness and quality	Increase the usage ratio of digitized of business processes	30%	100%		Ensure that processes are persistently and habitually used
Decrease design rework	Decrease average number of engineering changes per project	On average 71 engineering changes per project	On average 48 engineering changes per project		Efficiency and quality are persistently improved due to the improvement of processes
Increase efficiency	Decrease the cycle time of hardware design effort	On average 15 hours	On average 11 hours		Efficiency of the hardware design process cycle time is decreased by 27%
	Decrease total project management effort spent on data migration	25 man-hours per month	4 man-hours per month		Automated data migration between tools improves data reliability and resource usage effectiveness
	Decrease software peer review cycle time and improve defect density	On average 35 days per review and 0.03 defect density	On average 25 days per review and 0.36 defect density		Review tool updated to a newer technology to increase efficiency

Lessons Learned

Given ASELSAN MGEO's adoption of CMMI for over a decade, the organization has created more robust and well-structured processes. The organization's long history with CMMI made the transition to CMMI V2.0 during a pandemic possible to attain without major disruption.

Organization culture has dramatically boosted the performance and improvement of processes which emphasized the importance of these types of activities. Communication between people and departments was streamlined; all employees are now aware of their responsibilities, timelines and bottlenecks. Everyone has defined roles, responsibilities and work with a clear vision towards the end goal. Comprehensive dashboards provide a bird's-eye view of process performance and act as a guide for the organization to identify the improvement opportunities.

These lessons learned can help other organizations in their CMMI adoption journey.

- Starting appraisal planning activities and adapting to pandemic conditions made it possible to reach the organization's target deadlines even under added constraints and limitations.

- An appraisal team with a mix of experienced and new ATMs elevated the overall CMMI understanding and knowledge, with members highly skilled in their area of expertise.

- Conducting both an internal and third-party gap analysis provided a clear picture of where the organization was and what was needed for a successful CMMI adoption that fully supported the organization's objectives.

- Senior management was fully involved and supportive throughout the adoption process, highlighting their commitment and dedication to the CMMI journey.

- Appointing an experienced internal coordinator from the Quality Management Directorate ensured the alignment of CMMI adoption with multiple on-going improvement initiatives without losing the bigger picture of what is important for achieving the organization's business and process improvement objectives.

- During the appraisal process, the appraisal team was fully dedicated to their appraisal-related tasks, and all senior managers ensured that no additional work/project-related tasks were expected of these team members.

- The appraisal sponsor had a strong dedication to continuous improvement and CMMI. The sponsor provided visible support to ensure confidentiality and efficiency throughout the appraisal process.

- Due to the pandemic, ASELSAN MGEO utilized CMMI's virtual delivery experience. The Lead Appraiser played a vital role to dramatically increase the efficiency of the interview process. The Lead Appraiser's rigor in the planning process ensured that everyone involved, not just the appraisal team, clearly understood the needed individual, sub-team and team commitments and responsibilities. This made it possible to meet the pre-pandemic schedule without any extension.

"ASELSAN MGEO's decision to continue their CMMI journey with an upgrade to V2.0 during this challenging year demonstrates what a commitment looks like; see the vision, have a good plan, provide necessary resources, march ahead. For such an organization with a long history and a hierarchical structure, one might expect ASELSAN MGEO to be more rigid, but their adaptability as the year unfolded was another testament to the importance they gave to having a process architecture that supports their success."

Dilek Ozdemirci
Certified CMMI DEV Lead Appraiser & Instructor
Dora Process Consulting Inc.

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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.