

Case Study

BTS LABS Conducts its First CMMI® Performance Solutions Appraisal and Improves Performance and Capability Throughout the Organization

The Business Need

The BTS Group, based in Istanbul, Turkey, is a cutting-edge technology organization focused on artificial intelligence-based programmable infrastructures. BTS LABS is the first R&D Center in Turkey specializing in SDx and automation technologies, producing programmable infrastructures. They offer artificial intelligence-based automation, orchestration solutions, and hyper-converged platform applications with a high-level technical staff consisting of R&D engineers and academicians. The BTS LABS R&D Center is the beating heart of the organization, and its mission is to become a global R&D company in artificial intelligence-based programmable infrastructures. BTS LABS has developed crucial alliances with the leading institutions of Turkey and the world. It has partnered with Istanbul Technical University's (ITU) Artificial Intelligence and Data Science Application and Research Center, one of Turkey's leading technical universities. It also has relationships with the Cisco Innovation Center, and Aselsan, one of Turkey's largest defense manufacturers.

BTS LABS develops innovative technologies and products for local and international markets. As it grew, they realized that they required better processes and solutions for engineering and organizational support. While implementing standards like ISO and IEEE can be helpful, they realized they needed a more robust and flexible approach. They selected CMMI Performance Solutions DEV model because its emphasis on best practices was insightful, particularly as it related to product development.

BTS LABS identified that CMMI Performance Solutions would provide an integrated product suite that provides best practices and enables organizations to improve the performance of their key capabilities. This suite provides a clear roadmap for building, improving, and benchmarking the organizational capabilities. BTS LABS acknowledged the gaps within their organization and took on this initiative to improve their business performance.



Company Background

BTS Group's primary goal is to bring customers together with innovative technologies and solutions. The BTS LABS R&D Center forms the basis of the solutions, technologies, and approaches they offer, to the entire IT sector, from businesses to academic institutions, from the world's leading technology companies to domestic and foreign organizations. The BTS LABS R&D Center is the main unit of the BTS Group, focused on developing innovative products at the technological levels between TRL4 and TRL8 (Technology Readiness Level) with robust commercial potential. The BTS R&D Center is focused on product development, patent applications, and R&D activities to minimize hardware and human dependency in the three main pillars of the strategy pyramid, the following infrastructures are located just above the hardware layer, including Software Defined Everything (SDx), Orchestration and Automation, and Autonomy (AI/ML).

For more information, go to btsgrp.com



BTS LABS' R&D Center faced product quality issues and project delays due to unclear processes, ineffective resource allocation, and inefficient communication, resulting in missed market opportunities and revenue loss. The BTS LABS' R&D Center had challenges managing and implementing process changes, which hindered innovation. Communication breakdowns between teams and stakeholders led to misunderstandings, scope creep, and project inefficiencies. Customer feedback indicated that process improvements in product quality, responsiveness, and reliability were required. BTS LABS' R&D Center knew that to become a global player, they needed to address these issues to capitalize on emerging technological advances and the ever-changing and hyper-competitive marketplace. The objectives of their CMMI implementation:

- Enhance Product Quality
- Optimize Project Timelines
- Enhance Risk Management
- Streamline Change Management
- Increase Customer Satisfaction
- Drive Innovation
- Measure and Monitor Performance

“It is impressive to leverage the CMMI model practices to enhance organizational performance management. The spectrum of the CMMI model practices significantly covers the organizational activities and provides rational answers and resolutions to all subdomain issues.”

Gokhan Yurdakul, CEO, BTS LABS

The Solution

The BTS LABS R&D Center determined that CMMI Performance Solutions would help them address their quality, productivity, and communication issues. They also looked to CMMI help them achieve SMART goals (Specific, Measurable, Achievable, Realistic, and Timely) to ensure clear guidance and effective monitoring of the company. The capabilities targeted for this appraisal were:

- Ensure Quality
- Design and Develop Products
- Planning and Management
- Maintain Habit and Persistence
- Improve Performance

Their initial CMMI appraisal journey took approximately 2.5 years beginning in 2020: during that process the BTS LABS R&D Center identified areas for improvement, established a road map for enhancing processes, and ultimately achieved a higher level of maturity and performance, resulting in increased customer satisfaction, reduced costs, and improved competitiveness in the marketplace.



The appraisal process was eye-opening: once BTS LABS R&D Center began reviewing its processes, employees got involved in creating solutions throughout the organization. CMMI training became integral to their success formula for employees in critical positions. While senior management gained insight into the responsibilities and requirements to control and contribute to the product development activities, the project participants and the support group functions enhanced their estimation and planning capabilities. They established a new platform to integrate project and organizational activities to enable and monitor activities related to the organizational KPIs. The CMMI model is now at the core of BTS LABS R&D Center's development and execution process. They proudly achieved CMMI Development Maturity Level 3 in October 2023.

“The internal resistance for organizational change and improvement was broken during appraisal activities, with answers provided by the CMMI model and our Lead Appraiser. While the participants thought that they already had everything to complete their work, they recognized that the engineering domain cannot be siloed, and that engineering outcomes are also shaped by other domains, which determine the final product quality. The most beneficial outcome of the appraisal was the recognition of the coherence of the domains surrounding the engineering field.”

Ozgur Palantoken, R&D Director, BTS LABS

Key Performance Goals Achieved

CMMI Performance Solutions helped the BTS LABS R&D Center achieve impressive results.

↑ 38%

Improve time to market for new software releases by maximizing component reusability.

↑ 15%

Increased customer satisfaction through increased defect detection rates.

↑ 23%

Improved on-time delivery by enhancing estimating accuracy.



Lessons Learned

BTS LABS R&D Center introduced several innovative practices and integrated them into the organization's day-to-day processes and created buy-in from all levels of the organization: this dramatically enhanced their quality controls, productivity, and communication. They have: :

- Defined the enterprise-wide framework for the governance of product development activities in the organization. This includes several tools such as a JIRA for Task and Issue Management System with dashboards regarding the project and organizational level KPIs, which enabled smooth, consistent, and instant communication for relevant stakeholders
- Streamlined and automated the mechanism for quantitatively managing projects using MPM-based practices. This has not only increased the usability of this mechanism but also significantly reduced the effort required by the project managers
- Implemented the necessity, requirements, and benefits of Continuous Integration and Continuous Delivery
- Leveraged the architecture of the CMMI framework to define the business management system at BTS LABS. This has helped dramatically as BTS LABS integrates other frameworks and models such as ISO standards, PMI, and data privacy, integrity and security processes
- Recognized that Causal Analysis (CAR) and Performance Measurement (MPM) interrelations helped them to establish rational and deeper root cause analyses and fed the senior management and project milestone meetings with more quantitative and rational outcomes to inform more effective decision-making

“The CMMI Appraisal was very productive. Employees gained a huge awareness of the development eco-system in addition to engineering, and the interview style enabled practitioners to find out solutions to their daily recurring issues.”

Yagiz Sehirlı, Project Management Coordinator, BTS LABS

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