

CMMI® Helps Create Consistent Performance Management for Mission-Critical Operations at CAE

Company Background

CAE is a global leader in the delivery of training for the civil aviation, defense and security, and healthcare markets. It is headquartered in Canada and provides comprehensive training and simulation solutions and operational systems and support. For the past 25 years, the CAE Inc. Defence and Security, Canada Region (Mirabel, Quebec) group has been providing systems engineering, integrated logistics support, and information management systems as part of the maintenance contract for the CF-18 fleet of fighter jets.

THE BUSINESS NEED

The defense industry is increasingly demanding and competitive. For CAE to be a key player, the company must be able to support its clients through responsive, efficient turnkey solutions delivered on time and within budget. Because the company places high importance on customer satisfaction, it tries to go even further by providing a solution well beyond the project specifications. Accomplishing this goal calls for a process that is well defined, managed, and understood across the organization.

For its maintenance contract for the CF-18 fleet of fighter jets for the Canadian government, CAE knew that having consistent practices in place would help its team deliver a top-quality product. In addition, if there were any changes to the project timeline, CAE would be able to assess the overall impact and quickly supply the customer with options to meet their needs.

With those objectives in mind, CAE identified the following goals:

- Deliver a top-quality, defect-free product to its clients.
- Increase efficiency in the delivery of its products and services through deep knowledge of schedule, milestones, and cost.
- Increase productivity by gaining better control and predictability in its projects.
- Obtain a CMMI® maturity level rating to showcase its excellence and win more military jobs on which it bids.
- Standardize processes across the organization.
- Establish a proven track record of exceptional delivery.

With CMMI for Development (CMMI-DEV v.1.3) deployed, CAE achieved the following milestones:

2006



Earned CMMI maturity level 2 rating

2009



Earned CMMI maturity level 3 rating

2012



Earned CMMI maturity level 5 rating

2015



Maintained CMMI maturity level 5 rating

THE SOLUTION

Previously, CAE's process framework was based on military DOD 2167 standards and the ISO 9001 process for project management and quality control. These models were adopted to help CAE define a roadmap for improvement. CAE then accomplished its first phase of benchmarking with the Capability Maturity Model (CMM). This model enabled CAE to identify any gaps in order to improve its software engineering and quality capability and performance. But the company needed to go further.

In 2002, with the goal to become more efficient in its delivery of products and services and improve current processes with best practices, CAE initiated the implementation of Capability Maturity Model Integration (CMMI) at its Mirabel location.

“We identified CMMI as one of the most complete and widely recognized sets of industry best practices, allowing process improvements in a structured and systematic way,” said Luc Chiasson, Group Leader of the Quality Assurance and Continuous Improvement team in Mirabel. “We were convinced that its adoption was essential to our success.”

During CMMI maturity level 2 and 3 assessments, CAE was striving to produce a product with zero defects and wanted to ensure that any processes developed or improved would be effective and efficient across the organization. With the achievement of earning a CMMI maturity level 3 rating, CAE's capability improvement foundation was well established. CAE decided to next work to earn a higher maturity level to have better control and predictability in its processes and projects.

As CAE worked toward earning a CMMI maturity level 5 rating, it realized it needed to simplify its data collection and reporting across the organization to avoid investing significant full-time resources in measurement and analysis. As a result, CAE decided to automate its metrics collection and reporting, which provided the company consistent and reliable metrics. Previously, it took two and a half weeks to generate and analyze the data it needed. Now, project teams are able to consult and analyze the metrics dashboard daily. Current and historical data can inform and predict project performance, enabling company personnel to make important decisions that improve its objectives in real time.



RESULTS

Using historical data to optimize its peer review process and better control its schedule and budget, CAE was able to shorten the time needed to respond to any issues and to eventually maintain its CMMI maturity level 5 rating.

In addition, CAE saw the following results through its reappraisal at CMMI maturity level 5:

- A 60 percent reduction in turnaround time to establish approved project baselines
- A 30 percent faster implementation of process improvement requests
- The creation of a reliable framework for process improvements
- More predictable adherence to budgets and schedules for reduced program risk
- Decreased variability associated with the investigation of system problem reports
- A reduction in the cost of non-quality while keeping project costs and schedules in line
- Improvement of communication and team spirit across the organization

“Now, team members are not intimidated when they see a chart that calls for improvement, or to come forward to provide suggestions to modify a process,” said Alberto Coutino-Hill, Manager of CAE’s Defence and Security, Canada Region, Quality Group. “Improvement is driven by all.”

This culture of continuous improvement means standardized processes are shared across departments and divisions. Teams impart their best practices and tools, work together to address identified gaps, and institutionalize common terminology, practices, measures, and objectives, which ultimately improve the organization’s software development life cycle.

BUSINESS BENEFITS

Earning a CMMI maturity level 5 rating helps differentiate CAE from other companies, since it is the highest quality standard possible for software engineering. In fact, CAE is the only organization in Canada's aerospace industry with a CMMI maturity level 5 rating.

LESSONS LEARNED

Maintaining higher CMMI maturity levels requires automation to easily access and generate consistent and reliable data to share across teams. It is possible to do it manually to obtain level 4 and 5, but it won't be as sustainable or valuable when it comes to demonstrating ROI.

Developing detailed processes in the quality management system (QMS) can be expensive. Try to develop a good balance between employee experience and the number of and level of detail in QMS documents.

Standardized processes allow teams, departments, and divisions to efficiently share tools for easy collaboration. Such sharing is accomplished through common terminology, practices, measurements, and objectives.

“In the competitive environment of the Canadian defense sector, a key differentiator is the ability to provide defect-free products and services that meet the requirements and specifications of our customers, 100 percent of the time. We have found that being the only defense contractor in Canada with a key group that has earned CMMI maturity level 5 allows us to not only consistently achieve exceptional quality results, but also continuously improve upon them and share our experience with other groups in our organization.”

- Mike Greenley, Vice President and General Manager, CAE Canada, Defence and Security

About CMMI[®] Institute

CMMI Institute (CMMIinstitute.com) is the global leader in the advancement of best practices in people, process, and technology. The Institute provides the tools and support for organizations to benchmark their capabilities and build maturity by comparing their operations to best practices and identifying performance gaps. For over 25 years, thousands of high-performing organizations in a variety of industries, including aerospace, finance, healthcare, software, defense, transportation, and telecommunications, have earned a CMMI maturity level rating and proved they are capable business partners and suppliers.



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