



CMMI Institute

CMMI HELPS CREATE CONSISTENT PERFORMANCE MANAGEMENT FOR MISSION- CRITICAL OPERATIONS AT CAE

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TITLE: Line of Business Manager, Operational Solutions
and In-Service Support

ORGANIZATION: CAE



**CAPABILITY
COUNTS 2017**

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DANI RENZI

- **Professional History - CAE Inc.
Experience - 30+ yrs**

- Software Specialist, Flight Simulation
- Systems Engineer – CF-18 Systems Engineering Support (SES)
- Group Leader, Mission Computers – CF-18 SES
- Manager, Embedded Systems Engineering – CF-18
- Program Manager, Mission Solutions – CF-18, Magnetic Anomaly Detection (MAD), etc.

- Line of Business Manager, Operational Systems and In-Service Support – CF-18, MAD, MHP IIE, etc.
- Paramax, Canadian Patrol Frigates – Systems Engineer
- Participated in/sponsored CMMI appraisals

- **Education**

- Electrical Engineering, McGill University (1982)
- Computers and Systems Engineering, Rensselaer Polytechnic Institute (1983)



ABOUT CAE

- For the past 70 years, CAE (a Canadian company) has been a global leader in the delivery of training for the civil aviation, defense and security, and healthcare markets.
- In the Defence and Security space, CAE is committed to providing defence and security forces, world-class training centres, training and in-service support services, and a comprehensive portfolio of simulation products across the air, land, naval, and public safety areas
- For the past 30 years, CAE's Defense and Security, Canada Region (Mirabel, Quebec), has been providing systems engineering, integrated logistics support, and information management systems as part of the maintenance contract for the Canadian CF-18 fleet of fighter jets.



THE FUNDAMENTALS OF THIS PRESENTATION

- Consistent processes help teams deliver a high quality product in a consistent manner thereby leading to a proven track record of exceptional delivery and services. Once consistency is achieved, the optimization of those processes results in significant increases in productivity, as well as the ability to adapt faster to changes to customer requirements.
- This presentation will talk about how CMMI contributed to our continuous improvement efforts and the resulting lessons learned of this journey.



OUR JOURNEY

CMMI ASSESSMENT HISTORY

CMMI journey begins

Level 2 CMMI/DEV SCAMPI-A

Level 3 CMMI/DEV SCAMPI-A

Level 5 CMMI/DEV SCAMPI-A

Level 5 CMMI/DEV SCAMPI-A
Re-accreditation

- September 2002
- November 2006
- April 2009
- November 2012
- October 2015

THE BEGINNING OF OUR JOURNEY TOWARDS CMMI LEVEL 2

- What people thought before we started:
 - CMMI is too bureaucratic
 - Implementing CMMI will be too costly
 - Overhead costs and resources will increase significantly
 - People are not ready for changes
 - People will be judged by the metrics



ACHIEVING CMMI LEVEL 3 CREATED A GREAT TEAM SPIRIT

- What people thought **when** we achieved it:
 - Achieving **CMMI Level 3** was a total effort by everyone
 - We understand what is expected of us much more clearly
 - Our institutionalized processes make sense for what we need to do
 - Processes can be easily changed and improved
 - Nobody is being judged by the CMMI metrics

WE WERE NOT DONE YET!

- What people and management thought **after** we achieved **CMMI Level 3**:
 - We can still see a lot of room for improvement
 - Our customer is very satisfied with our services
 - Continuous Improvement is seen as required and beneficial
 - We don't measure all we could measure
 - Our internal culture is evolving
 - Achieving **CMMI Level 5** can be a realistic objective

AND THEN - CMMI LEVEL 5

- What people and management thought once we achieved **CMMI Level 5**:
 - We did it!
 - We are one of very few companies in Canada
 - Our customer is very satisfied with our services
 - Our company leverages our achievement internally
 - Our internal culture is very strong
 - We are more than the sum of our parts
 - We understand the benefits of having this level
 - Let's do it again!



FINALLY – WHY NOT DO IT AGAIN?

- What people and management thought when we did **CMMI level 5** again:
 - Proud of what we do and the way we do it
 - Our customer are very pleased
 - We are considered a Centre of Excellence within our company
 - **We're a unique aerospace company in Canada to successfully achieve re-accreditation!**



KEYS TO OUR SUCCESS

EARLY AUTOMATION - INDISPUTABLE KEY TO CMMI LEVEL 5

COLLECTING AND VALIDATING DATA DAILY

- All the data collected go through validations
- Control charts outliers and detection rules are refreshed daily
- Automatic notifications are sent when anomalies are detected by the system

ANALYSIS DATA WEEKLY

- Adjustments are done based on data processed in the morning
- All improvement decisions are based on statistical data
- Sample data: defects, risks, milestones, hours, audits

MATURITY=CONTINUOUS IMPROVEMENT, A CULTURAL CHANGE

- As a mature organization
 - Our employees are focused on continuous improvement
 - Lesson learned are reviewed and publicized
 - Anyone can recommend process improvements
 - People accept to be challenged for objectives and are open to change their ways
 - People see metrics as a mean to improve not as big brother

COMMUNICATION AND PARTICIPATION KEY TO CHANGE MANAGEMENT

- Have a communication plan to prepare team for change
- Keep people informed of your initiatives' progress
 - Some roadblocks could be avoided just by sharing information
- Stakeholder involvement is a key success factor in improvement

STANDARDIZED PROCESSES & TEMPLATES

- Developing and maintaining detailed processes can be expensive
- A balance between employee needs and the quantity and detail of processes should be sought
- Standardized processes allows different teams to collaborate efficiently
- Common terminology, practices, measurements, and objectives contribute to this

CONCRETE RESULTS AND LESSONS

ADVANCING OUR CAPABILITIES THROUGH RESULTS

- 60% reduction in turnaround time to establish approved project baselines
- Process improvement requests implemented 30% percent faster
- Predictability in adherence to budgets and schedules - reduced program risks
- Decrease of >50% in the time variability associated with the investigation of system problem reports
- Reduction to <1.5% in the cost of non-quality
- 5% reduction in the cost of quality in the last year
- Improvement in communication, team spirit, and pride across the organization

LESSONS LEARNED

- Empower people
 - Attribute process ownership to employees
 - Always listen to dissent
- Process performance models
 - Focus on specific areas, do not try to have one big model
 - Establish realistic but challenging objectives
- Prototype first, automate after
 - All prototypes are done in tools that can be easily customizable (e.g. Excel).
 - When we are satisfied then we implement in our metrics tool for consistency
- Appropriate Tools
 - Invest in tools to support process management
 - Invest in automation of data collection and reporting

WHAT IS NEXT?

OUR JOURNEY CONTINUES!

- Maintain **CMMI/Dev Level 5** accreditation
- Increase automation
- Reduce cost of quality
- CMMI for services
- Continue to share knowledge/experience acquired



THANK YOU