

How L-3 Leveraged the CMMI for Services to Drive Cultural Change and Business Growth

John Ryskowski, JFR Consulting
Dianne Tolliver, Engineering Solutions & Products, LLC (ESP)
Jeremy Williams, L-3 National Security Solutions (NSS)

Abstract. This is the story of a group that used the CMMI for services (CMMI-SVC) to help create a small and powerful business capture organization that demonstrated impressive results in their first three years (from \$87M to \$1.5B). They maximized the value of the CMMI-SVC by choosing only those process areas that immediately supported their business needs and vision. Once spun up, this organization proved if one puts the business needs of the organization first, one is able to apply the CMMI with surgical precision that affords pure benefit with no waste, and paves the way for increase revenue.

Introduction

Faced with increasing competition, L-3 National Security Solutions (NSS) established the Multiple-Award Resource Center (MRC) to enable new growth from the win of task orders through L-3's Government-wide Acquisition Contracts (GWACs) and Indefinite Delivery/Indefinite Quantity Contracts (IDIQs) with the US government. The MRC had three goals to achieve:

- Create a positive and enabling business culture
- Quickly streamline operations
- Significantly improve sales through the GWAC & IDIQ contracting vehicles

To reach these goals, the MRC partnered with the L-3 NSS Process & Quality Management team to support the implementation of the CMMI for Services Model (CMMI-SVC) [1] across the MRC. Over eighteen months, the two organizations worked hand-in-hand to innovatively implement the CMMI-SVC to drive positive cultural changes, improve operational efficiencies, and increase sales via the L-3 MRC GWAC/IDIQ contracts.

This paper discusses the MRC's unique implementation of CMMI-SVC to support the achievement of its goals. It addresses how the selection of CMMI-SVC process areas yielded streamlined processes designed to fit the fast-paced business needs of the MRC. It highlights the MRC's approach to social change that garnered staff buy-in and the institutionalization of processes. This paper also includes pertinent data demonstrating impressive business results. Finally, it reviews the lessons learned and salient takeaways from the MRC CMMI-SVC implementation.

Audience

- Senior managers interested in the right amount of infrastructure to stand up a lean organization and increase profit.
- Senior leaders that must quickly implement major change management initiatives
- Any organizational manager desiring a precise application of improvement methodology that is form fitted to his or her business needs.
- CMMI practitioners who wish to entertain a new paradigm for client success and put business needs and profit ahead of "being maturity level 3."

Breaking Free from Maturity Level 3

The idea of a maturity model was motivated by the US government, particularly the Department of Defense. Procurement agencies had little or no visibility into the software development portion of programs that seemed to be 90% finished 90% of the time. The Software Engineering Institute was formed to take on the task of solving this problem. Their solution was predicated on the idea that if one uses a quality process, one will produce a quality product. The key was to identify the correct process requirements, and a constructive methodology to determine their achievement. The Capability Maturity Model (CMM), which was the precursor to the current CMMI (I for Integration), captured the process requirements and was published in 1994. The methodology for determining achievement is an appraisal method, which is done "with" an organization, and differentiates itself from an audit which is done "to" an organization.

The CMM was a "staged" process model, which means that a non-overlapping group of requirements are needed to achieve each of maturity levels 2, 3, 4, and 5 (all organizations start at maturity level 1). An organization's project management sophistication increases as it moves up the maturity levels. This maturity level rating furnished the ability to clearly articulate a very complex process achievement with a single digit number that was easily recognizable and comparable across the industry. The drawback was an early industry assumption that all the process requirements of maturity levels 2 and 3 were a good fit for all organizations.

The initial users of the CMM(I) were military contractors and their subs. In the early 2000's however, commercial users began to outpace the military contractors, a trend that has continued. After years of application to organizations all over the world, it became clear: putting the principles of the CMMI into practice was indeed a benefit to adopting organizations. The CMMI has proven itself to be effective in a myriad of development, services, and acquisition industries.

The CMMI, unlike its precursor the CMM, is not staged and can be applied in what is known as a "continuous" representation. An adopting organization no longer has to take on all the model requirements that comprise maturity levels 2 and 3 to be considered successful. It can take on only those process requirements that best suit its business needs. This approach, though a possibility since 2001, has rarely been applied for fear of acceptance. The notion that echoes throughout the CMMI is that one should never lose sight of the true business needs of the organization. When putting the business needs of the organization first, one is

able to apply the CMMI with surgical precision, a level of greater granularity that affords pure benefit to the organization with no waste. The organization is ultimately more capable.

The CMMI has three “constellations,” the CMMI for Development (CMMI-DEV), the CMMI for Acquisition (CMMI-ACQ), and the CMMI for Services (CMMI-SVC). The purpose of the CMMI-SVC is to guide service providers as they improve the way they do their work. The MRC was clearly a service provider to L-3 NSS and therefore chose the CMMI-SVC. The MRC chose the continuous representation which gave it the flexibility to pursue only those Process Areas that best support its business needs. The MRC chose 10 of the possible 24 Process Areas, and they are:

1. Measurement & Analysis - to provide meaningful insight into the MRC’s vitality and a critical (objective) view of performance,
2. Process and Produce Quality Assurance- to ensure process adherence,
3. Configuration Management- to supply a beneficial balance between MRC agility and CM rigor,
4. Decision Analysis and Resolution- to utilize a one-page DAR template for prime/subcontractor selection,
5. Service Delivery- to define Service Level Agreements for each of Task Order proposal, Master Contract Management, and Task Order Identification and Development,
6. Incident Resolution and Prevention- to ensure trends and systemic observations are detected, formally tracked, and resolved,
7. Service System Transition- to create a New or Changed Services Implementation Plan (aka Transition Plan) template that assists the planner and ensures verification of the transition,
8. Strategic Service Management- to understand competitive positioning of the MRC and capacity that is carefully managed,
9. Risk Management- to create a risk system that is immediately useful, and
10. Service Continuity- to create simple and common sense solutions that are rigorously practiced to ensure continuity of services.

Project Background

In the summer of 2011, L-3 Communications realized the need to quickly change and adapt to the fast-paced and growing environment of Indefinite Delivery Indefinite Quality (IDIQ) contract vehicles. IDIQs are a key enabler for company growth and an outstanding mechanism for supporting the missions of Federal Government customers. L-3 leadership was interested in creating the right amount of infrastructure to grow a lean organization capable of expanding sales. Key elements of their vision were:

- A high energy growth engine
- A streamlined proposal engine with quick turnaround and high quality deliverables on the proposal side
- An efficient, strong, lean, and compliant program management structure
- Lean but highly effective sales structure

To meet this vision, L-3 established the MRC in the summer of 2011 to centrally manage IDIQs, GWACs and General Services Administration (GSA) Schedules.

After completing its initial detailed planning, the L-3 MRC “went live” in February 2012 providing services supporting IDIQ program management and compliance, task order identification and sales, and quick-turn proposal development. Working alongside various internal L-3 business development organizations from opportunity identification through task order (TO) completion, the L-3 MRC team ensured that the L-3 contract vehicles and associated processes met their customer needs and that contract compliance requirements were achieved.

Defining the Solution

Prior to the establishment of the MRC, L-3 maintained a loosely affiliated group supporting the organization’s IDIQs and GWAC vehicles. The original group was understaffed and primarily focused on the basic transactional processing of work through the contract vehicles. There was little to no focus on key customers, new work identification, value added contract administration or task order proposal development. The group lacked focus, structure, cohesiveness, and energy. Concurrent with any process changes required to evolve the organization, a significant cultural change would be required to meet the MRC vision and goals. The unstructured staff needed to become a tightly knit team with the correct subject matter expertise and skills to thrive in the new fast-paced and dynamic MRC environment that was coming.

Due to time pressures and pressing business requirements, the newly appointed Vice President for the MRC, Dianne Tolliver, engaged the services of L-3’s NSS Vice President for Business Transformation, Process & Quality Management, Jeremy Williams. Together with their teams, they engaged in an eighteen-month transformation process to evolve the organization. The team started with a goal to drive the business objectives into the process solutions to create a business model that was sustainable, scalable, affordable, and that enabled movement at the speed of business. Moreover, the team wanted to use an accepted industry framework to leverage any existing best practices. After evaluating the available industry models, the CMMI-SVC was selected.

For the MRC to quickly and successfully implement CMMI-SVC in a way that met its business goals, a “common sense approach” to the model was critical. The team selected, used, and leveraged the process areas that supported the critical business requirements and left those that did not “fit” the MRC business case. For example, Service Delivery was selected but Work Planning and Work Monitoring & Control were not. Highest value was placed on creating simple and streamlined processes that incorporated both the spirit of the CMMI-SVC (using the “continuous” representation) and the “on-the-ground practicality” of the business needs.

Implementing the Change

A change management approach, with a thorough and lengthy understanding of the current processes and the graceful transition from it, would simply not work. Time would not permit it. Once “spun up” to the energy level expected, the L-3 NSS executive team and MRC members simply would not, and could not, tolerate a slow change process.

The classic design constraints would apply:

- Feasibility - What could be achieved in the required timeframe (by December 2012).
- Viability - Must match the speed of the business and consider only activities that added immediate value.
- Desirability - People must quickly embrace the new business model/processes and execute.

Key roles that were in place to leverage success:

- VP of MRC (Dianne Tolliver) - “Fire in the belly” leader who came with IDIQ Center and change management expertise. She embraced her role as change agent for the required cultural transformation.
- VP of Process & Quality (Jeremy Williams) - Seasoned process modeler and quality leader, who sees quality and infrastructure as profit-making assets. MRC quality and process strategist.
- Quality Practitioner (Lynn Iffland) - Tactical, boots on the ground quality support.
- MRC Practitioners (Tomma Bersie, Laura Strafer) - Quality’s counterpart within the MRC with significant process modeling experience.
- MRC Proposal Center Director (Christian Schoener) - Key staff level champion.
- MRC Team Members - All but one program manager was PMI certified: high level of applied experience across the team.
- Lead Appraiser (John Ryskowski)- Understands business beneficial applications of CMMI.
- Sponsorship - Les Rose, President of L-3 NSS, and Hans Hollister, Sr VP of L-3 NSS.

The posture going in was to be creative, then move hard and fast. Ms. Tolliver challenged the MRC team, significantly raised the bar on performance expectations, and provided tools and infrastructure to achieve the transformation. There would be no process whose only purpose was to meet the CMMI-SVC. New processes would be organically formed and instantly put into practice, with formal definition following close behind. Incremental changes to existing processes would take too long, and were seen as the death of innovation.

The Activities of Change

The team started with naming the required conversations; what would be valued added and what would not. Once this was established, it went well. The conversation determining which CMMI-SVC process areas would serve the business needs only took forty-five minutes. This was due to the QA sponsor putting the business needs first then identifying logical value-added assets from the CMMI-SVC.

The culture had to quickly transform. People were used to managing one GWAC/IDIQ at a time and they now needed to support five to seven contracts, while also focusing on increasing growth. The MRC/QA leadership helped the team envision their potential, and get them excited about the possibilities. A conscious decision was made to move as quickly as possible. The idea was to move so fast that it was impossible to get in front to obstruct progress, to keep moving toward the vision

before anything had time to lose momentum. As the solutions were formulated, they were immediately used.

Ms. Tolliver began the transformation process by creating a safe environment. Every member of the MRC team was engaged to leverage their knowledge, ideas, and recommendations to build streamlined, focused, and documented processes. In addition, key internal representatives from every functional area were also brought into the transformation (e.g. contracts, subcontracts, finance, quality, human resources, training). In parallel, Ms. Tolliver worked with Mr. Williams and the Quality Team to clearly understand the CMMI-SVC and existing QA practices, in order to establish processes that would be immediately leveraged. The themes throughout the fast-paced and flexible implementation of the CMMI-SVC were simplified, streamlined, and institutionalized processes that supported the MRC. Complexity was rejected and only those portions of the CMMI-SVC that added value for the MRC business were implemented.

The CMMI-SVC inspired the MRC to have a great solution by supplying topics to address. Together the team would create the solution and put it into operation. Formal process definition and mapping to the CMMI-SVC, sometimes seen as institutionalization, trailed closely behind.

Generous time was spent training the team on the goals of the MRC and the CMMI-SVC model. This was necessary since every member of the MRC was a process creator, critic, and practitioner. Buy-in from all team members at every key step became a “way of life.” The team was part of the design process attending weekly creative sessions with all the disciplines, which was part of the battle rhythm.

A technique, similar to Hoshin Kanri “catchball,” [2] was used where the “ball” of process design and solution is tossed back and forth from management to team (and back) until a final consensus is reached. A snippet of the process framework design would be passed to the team. The team would write up a solution snippet and send it back. This worked well in an agile sprint fashion. The team could only take on digestible chunks each week. Part of this was due to personnel availability, but it naturally worked well. An example of a snippet would be service continuity (one of the CMMI-SVC process areas). This approach helped the team to achieve a high change velocity of both speed and direction.

The team celebrated successes frequently, and mourned proposal losses as a group. People were proud to be part of the MRC team. Simply said, the team worked together!

It is important to note that the MRC took on the CMMI-SVC while spinning up this new organization. The MRC used the CMMI-SVC model to help develop the organization and all of its processes. Initially this added a layer of difficulty, but was ultimately rewarding. In addition, the team was responsible for accomplishing key performance targets while the transformation was underway.

Results - “We have blown our numbers out of the park since we implemented CMMI-SVC”

When the MRC was chartered it received three specific strategic objectives from the Division President, the Business Unit General Managers, and the Senior VP of Business Development:

- Ensure Master Contract Compliance

- Centralize and leverage L-3's major GWAC/IDIQ contracts to increase awards and revenue
- Develop high quality, quick turn-around task order proposals

In 2011, a baseline metric was established for the business value of the IDIQ assets to see if the MRC investment brought value to L-3 NSS. The MRC went "live" one year later.

Within three years, the MRC partnering with L-3 Business Units achieved the following:

- More than doubled proposal submittals
- Increased awards over seven fold
- Achieved over \$1.5B in cumulative awards during the 3-year timeframe (compared to \$87M in 2011)
- More than doubled revenue

The team developed and maintained a \$30B funnel of task order opportunities. Previous to the MRC's existence, the Business Units were constantly surprised by new business opportunities. Without the ability to write quick-turn proposals, many opportunities were discarded. Now, the Business Units are positioned for key proposals and are able to easily complete quality proposals that are submitted on schedule.

Even though the submittal rate has only increased by 255%, the team is winning more often as demonstrated by the 717% growth. The MRC moved the revenue needle by leveraging their focus on the opportunity funnel: customer relationship management, task order sales, personnel and business unit partnership, and a proposal team that can handle over ten simultaneous proposals a month. The MRC is a "well-oiled machine."

In 2013 the MRC was challenged to broaden its horizons from supporting one business segment to supporting multiple business segments towards a "One L-3" solution. Based upon that initiative, the MRC GSA Schedules' Project Manager significantly expanded the GSA Schedules so that the Divisions had another way to market their services and products to the Federal Government. In addition, the MRC added more IDIQ vehicles to the Center without increasing personnel. Originally the MRC was executing five to six IDIQ contracts, and they are now running over forty IDIQs in a given year. This was due in part to the infrastructure afforded by the CMMI-SVC.

In Conclusion

The MRC took a non-traditional approach to applying the CMMI-SVC. The target was not a maturity level; it was supplying the right amount of infrastructure to support the MRC and significantly increase awards and revenue. Although the MRC reached Capability Level 3 for ten process areas of the CMMI-SVC, success was principally recognized as it supported financial results. Another non-traditional aspect is the use of the CMMI-SVC as a tool to help spin-up a new organization.

What the MRC realized:

- The recipe for success: Cultural Change + Operational Efficiencies= Improved Sales and Morale.
- Accomplish more with less, and the CMMI-SVC allowed the team to do that.
- The solution must be embraced by the entire team and come before institutionalization.

	Submittals	Awards	Revenue
% Growth Increase	255%	717%	240%

Table 1: Growth Compared to 2011

- In the midst of change, a focus on process removes the emotion from the change experience. The CMMI-SVC furnished the MRC with this. It was shiny, different, and fun.
- The CMMI-SVC gave the MRC a clean and crisp framework to hang the processes on.
- Drive the process, but do not let it be the driver.
- The CMMI-SVC gave the team ideas for what processes to pursue.
- Experience with other models is a big help.
- Practice the 3 S's- simple, strategic, and spirit of the CMMI-SVC model.
- Manage chaos with a confident drive fueled by a solid vision, and without attachment to any single solution.

If there was no CMMI-SVC, the MRC would have developed another way to establish process creation and improvement. They would have developed their own framework, but it would have slowed the cultural change and growth process.

Lessons Learned

If you have a significant change management initiative in a short timeframe, you need:

- Senior executive sponsorship and support.
- A strong leader/change agent with a vision and a strong constitution.
- A safe environment that encourages creativity, risk taking, and working together.
- Buy-in from all participants; If people don't "buy-in", they need to "get off the bus."
- A framework that fits nicely, that is very tailor-able.
- An experienced CMMI-SVC guide to help; the model can be confusing at first blush.
- To not stop with your initial success. The MRC now has two off-site sessions per year to identify changes/improvements, and meet monthly to discuss improvement actions. All MRC members and key internal enablers and customers attend the open sessions.
- To always celebrate your successes and remember to have fun along the way!

The MRC identified ten process areas (containing 42% of the total model practices) from the CMMI-SVC that supported their business needs spot on, and brought them to capability level 3. As it turned out, some these process areas were from maturity level 2 and some were from maturity level 3. They used the CMMI-SVC to inspire great solutions and never once uttered the term "maturity level."

Disclaimers

Copyright © 2016 John Ryskowski, Dianne Tolliver, Jeremy Williams. All rights reserved.

ABOUT THE AUTHORS



John Ryskowski has been helping organizations transform themselves and increase their capability since 1989. He is particularly interested in the social entanglements that preclude progress as organizations work to create their vision, identify actions, and achieve goals. John holds a MA in Education from California Lutheran College, a BA in Mathematics from California State University Northridge, is a Problem Solving Leadership graduate, and a CMMI High Maturity Lead Appraiser for services, development, and acquisition.

E-mail: jfryskowski@yahoo.com

Phone: 310-937-6077



Jeremy Williams is vice president of process and quality management at L-3 National Security Solutions (NSS). He is responsible for improving NSS service quality, innovation/automation for internal corporate business systems, providing consultation to NSS executive management and external customers, managing core staff & budgets, and overseeing ISO/CMMI activities. Williams is PMP certified, a trained lead ISO auditor, is ITIL foundations-certified, and holds MA and BA degrees in geography from the University of Tennessee, Knoxville.

E-mail: jcwilliams@l-3com.com

Phone: 703-434-5074



Dianne Tolliver is now Senior Vice President for Growth and Innovation at Engineering Solutions & Products, LLC (ESP). While at L-3, Ms. Tolliver led the creation of the Multiple-Award Resource Center (MRC) whose Indefinite Delivery/Indefinite Quantity (IDIQ) task-order awards increased to \$1.7B from \$87M in less than four years. Other capacities for which she has served include CIO and VP of Program Operations. Ms. Tolliver is PMP-certified, holds a BS in Business Administration from California State University, Northridge, and a MS in Public Administration from California State University, Bakersfield. She received her Executive Coaching Certificate from George Mason University, Fairfax, VA.

E-mail: Dianne.Tolliver@esp.us.com

Phone: 571-499-7787

REFERENCES

1. Forrester, Eileen C., Brandon L. Buteau, and Sandy Shrum. *CMMI for Services: Guidelines for Superior Service*. Upper Saddle River, NJ: Addison-Wesley, 2010. Print. ® Capability Maturity Model Integration and CMMI are registered in the U.S. Patent & Trademark Office.
2. Akao, Yōji. *Hoshin Kanri, Policy Deployment for Successful TQM*. Cambridge, MA: Productivity, 1991. Print.

CALL FOR ARTICLES

If your experience or research has produced information that could be useful to others, **CROSSTALK** can get the word out. We are specifically looking for articles on software-related topics to supplement upcoming theme issues. Below is the submittal schedule for the areas of emphasis we are looking for:

Beyond the Agile Manifesto

Nov/Dec 2016 Issue

Submission Deadline: Jun 10, 2016

Software's Greatest Hits and Misses

Jan/Feb 2017 Issue

Submission Deadline: Aug 10, 2016

Please follow the Author Guidelines for **CROSSTALK**, available on the Internet at www.crosstalkonline.org/submission-guidelines. We accept article submissions on software-related topics at any time, along with Letters to the Editor and BackTalk. To see a list of themes for upcoming issues or to learn more about the types of articles we're looking for visit www.crosstalkonline.org/theme-calendar.

