Software Engineering Institute

Interpreting Capability Maturity Model® Integration (CMMI®) for Business Development Organizations in the Government and Industrial Business Sectors

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Abstract

Just as use of a disciplined process has been shown to produce higher quality and more predictable software-intensive systems, use of a disciplined business development and marketing process can result in improved success for the business enterprise. Overall business performance and marketing of technology and software-intensive systems can be improved by applying the concepts defined in Capability Maturity Model® Integration (CMMI®) best practices.

This interpretation of CMMI best practices is for business development activities applicable to contractors doing business within the government (Department of Defense) and industrial business sectors. Using CMMI for business development and product development in the same organization addresses process improvement from a larger business perspective, creating the potential for increased efficiency, improved quality, and better customer satisfaction, and improving the organization's ability to achieve a profitable market share. Many organizations have achieved proven benefits from CMMI-based process improvement programs. This success can be extended beyond product and service engineering to business development organizations by interpreting CMMI best practices for the business development and marketing environments.

This technical note uses the continuous representation of a CMMI model and provides interpretation of CMMI process areas in each of the model's four categories: Project Management, Support, Process Management, and Engineering. Because many best practices for business development activities are not included in CMMI models, four new process areas were added to cover these activities.

This technical note provides an initial construct for business development. Further discussions within the business development and CMMI communities can result in improved refinements.

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1 Business Development Organizations

Business development and marketing organizations typically have the ultimate responsibility of closing the sale in a way that brings profit to the business enterprise. It is important at the outset to understand that business development and marketing are not just sales; sales is a subset of business development and marketing. Within this technical note the terms *business development*, *marketing*, and *sales* are defined and used as follows: *Business development* is used to define the whole of the process to capture an award, which includes marketing, sales, pricing, proposal development, competitive analysis, etc. Business development is typically used by organizations within the government and industry business sectors. The term *sales* describes the direct interaction between the seller and the buyer. Generally, business development covers a longer period of time and is strategic. Sales typically covers a shorter period of time and is tactical.

Dr. Philip Kotler, in his text *Marketing Management*, defines *marketing* as "a societal process by which individuals and groups obtain what they need and want through creating, offering, and freely exchanging products and services of value with others. For a managerial definition, marketing has often been described as 'the art of selling products,' but people are surprised when they hear that the most important part of marketing is not selling! Selling is only the tip of the marketing iceberg" [Kotler 02].

The focus of this technical note is on business development organizations whose goal is to capture government business, with a special focus on the Department of Defense; however, this technical note is also applicable to organizations doing business in the industrial sector (examples in the industrial sector are customers who buy electric power plant apparatus, an oil refinery, and a chemical plant design). Defense contractors typically have an organization that manages the business development process. A defense contractor's business is characterized by a limited number of large, important opportunities. These business development organizations typically are responsible for the sales and marketing processes and are dedicated to the defense industry. For large acquisitions, the government produces a request for proposal (RFP) to which defense contractors submit proposals (in some business sectors, the request for proposal is known as a request for quotation – RFQ). The response to RFPs is managed by the defense contractor's business development organization. Marketing is only part of the process, but the term marketing, as noted above, typically conjures up thoughts of a consumer-oriented business.

Note: In this technical note, the terms *business development organization* or *organization* refer to the organizational entity within a large company that is responsible for business development. The term *enterprise* refers to the entire company entity.

Business development functions include the following:

- understanding customer needs
- responding to RFPs
- preparing proposals
- pricing
- managing sales organizations and campaigns
- positioning products
- preparing advertising and collateral material
- defining product value propositions
- managing market risks
- managing the negotiation
- closing the deal
- establishing and maintaining customer relationships
- executing successfully in a cost effective and acceptable manner

A typical business development organization may contain the following functional areas:
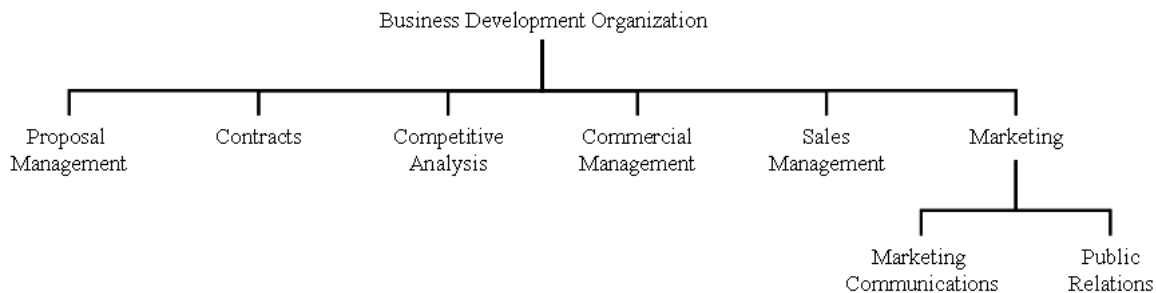
Figure 1:   Business Development Organization Structure

All of these business development functions are guided by market strategies and sales plans. While *strategy* may mean different things to different people, it generally refers to "what to do" within the entire competitive marketplace. The sales plan generally defines how to do specific actions and tactics used to guide the management of a specific sales campaign. The business development executive is responsible for all of these functions in an uncertain and competitive environment.

To describe how a business development organization contributes to the enterprise's success, Kotler writes, "The key to achieving its organizational objectives consists of the [enterprise] being more effective than competitors in creating, delivering, and communicating superior customer value to its chosen target markets" [Kotler 02].

The process of business development is rampant with uncertainty and overhead costs. A business development organization, like an engineering organization, can benefit from a defined and disciplined method of conducting its business and achieving organizational effectiveness. For example, higher proposal success rates, lower marketing costs, and increased market share can be measures of marketing effectiveness that can be used in demonstrating the benefit from a disciplined process. In the long term, an integrated business development and product development process can make the difference between a successful enterprise and one that becomes financially jeopardized. The same principles used to improve the process to develop technical products and services can be used to improve and sustain the commercial aspects of the enterprise and ultimately its business success, growth, and longevity.

For a technology-based enterprise to succeed and grow in a changing and uncertain environment, an actively improving market process must complement the product development and innovation process.

2 CMMI and Business Development

Ultimately customers determine the success of the applications of high technology, influence the successful deployment of the product, and determine whether products and services are purchased. Meeting customer needs and requirements makes the difference between a successful product and one that fails.

Organizations that grow and weather economic cycles have a customer focus. They develop and successfully market products and services in a competitive and uncertain environment in a manner that benefits both the customer and the business enterprise.

Business development applies product and/or service innovation to meet customer needs in an environment of uncertainty. This uncertainty relates to the customer environment, customer needs, and the customer's buying process, technology alternatives, and competition. The role of business development is to obtain customer acceptance of the company's products and services while returning benefits (e.g., a profit or actionable information from a business development perspective) to the organization so that it can further innovate and reward its investors (e.g., shareholders) and employees.

Just as a disciplined process has been quantitatively shown to produce better software-intensive systems with predictable schedules and costs [Gibson 06, Herbsleb 94], a similar disciplined process within the business development organization should produce better marketing results.

Considerable research has been done to determine the best software and systems engineering development, acquisition, and sustainment practices. Many of these practices are part of the CMMI framework [Chrissis 03], a collection of best practices now being used by organizations to evaluate and improve their product development.

CMMI models provide a framework for defining and improving processes used to develop and deliver products and services. CMMI is evolutionary, and it integrates the widely used Capability Maturity Model for Software (SW-CMM®) used by software organizations with systems engineering best practices (i.e., Electronic Industries Alliance [EIA] 731). However, without proper and focused marketplace execution, there is a risk that CMMI process discipline will have diminished value. The use of this technical note to interpret CMMI for business development will help organizations mitigate that risk. Marketing of technology and software-intensive systems can be improved, and overall business performance can be improved by applying the concepts embedded in CMMI best practices.

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3 CMMI Overview

CMMI models define sets of best practices grouped into process areas that product development organizations implement to improve the predictability of their project costs and schedules. Return on investment studies by the Software Engineering Institute (SEI) and others have concluded that investing in process improvement can lead to improved performance in meeting business objectives [Gibson 06]. The CMMI framework defines *what* an organizational entity should do to achieve the CMMI best practices.[1]

This report is based on CMMI version 1.1 (version 1.2 was released in August 2006). CMMI v1.1 models are available in two representations, *staged* and *continuous*. The staged representation reflects stages progressing from maturity levels 1 through 5 and is well known for its use in benchmarking organizations' process maturity. The continuous representation, though less well known, has the same process areas arranged in a more flexible grouping of four process area categories: Project Management, Support, Process Management, and Engineering.

There are multiple CMMI v1.1 models available. Each addresses a different combination of disciplines such as systems engineering, software engineering, integrated product and process development, and supplier sourcing. The model chosen for this technical note, to be interpreted for business development organizations, is the CMMI model that includes systems engineering and software engineering. Also, this report utilizes the continuous representation. The CMMI process area categories and their member process areas in the chosen CMMI model are presented in Table 1:

Table 1:   CMMI Process Area Categories and Their Member Process Areas

CMMI Categories – Continuous Representation	Process Areas
Project Management	Project Planning Project Monitoring and Control Supplier Agreement Management Integrated Project Management Risk Management Quantitative Project Management
Support	Configuration Management Process and Product Quality Assurance Measurement and Analysis Decision Analysis and Resolution Causal Analysis and Resolution

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[1]   CMMI best practices were researched and assembled by a collaboration of government, industry, and the SEI.

CMMI Categories – Continuous Representation	Process Areas
Process Management	Organizational Process Focus Organizational Process Definition Organizational Training Organizational Process Performance Organizational Innovation and Deployment
Engineering	Requirements Management Requirements Development Technical Solution Product Integration Verification Validation

The focus on improvement should be consistent with an organization and enterprise's business and strategic objectives. Organizations can use a staged representation to improve and benchmark their maturity against a defined model or the continuous representation to improve their capability level ratings within an individual process area. A CMMI model defines specific goals (SGs) for each process area (PA) that must be implemented to meet the intent of the process area. Also associated with each goal is a set of specific practices (SPs) that describe activities that when implemented satisfy that specific goal. Generic goals and generic practices are also part of the CMMI model architecture. A generic goal describes the characteristics that must be present to institutionalize the processes that implement a process area. Generic goals and generic practices are not addressed in this technical note.

The CMMI model has the following hierarchy:

Process Area Category
    Process Area (PA)
        Specific Goals (SGs)
            Specific Practices (SPs)
        Generic Goals (GGs)
            Generic Practices (GPs)

The next section contains tables that provide interpretations of process area goals and practices that can be applied toward improving the processes of a business development and marketing organization. In addition, four new process areas specific to business development and marketing were added:

- Branding and Promotion
- Relationship Management
- Competitive Analysis
- Pricing

In some cases, supplemental guidance is provided. Section 4 provides a table of the process areas, specific goals, and specific practices from the book *CMMI Guidelines for Process Integration and Product Improvement* by Mary Beth Chrissis, Mike Konrad, and Sandy Shrum [Chrissis 03]. The specific goals and specific practices of a process area are listed on the left side of the table and interpretive information corresponding to these is provided on the right side of the table. If a new process area, specific goal, or specific practice was added, the left side of the table is blank. Note that in the tables "NFI" indicates that the goal or practice is usable for business development but no further interpretation is needed, and "N/A" indicates the goal or practice is not applicable for business development or is not addressed.

4 Interpretation of CMMI Best Practices

A core competency of a government contractor's business development organization must be the ability to respond to RFPs effectively and to prepare competitive offers. For large, complex engineered products, such as jet fighter planes, business development campaigns and proposal preparation may span a year or more and the cost may be in the millions of dollars. The strategic and tactical preparation is non-trivial.

On a smaller scale, the process of responding to a request for a new roof for a house undergoes a similar but reduced process. The proposal must contain a definition of the scope, price, delivery, terms, and so forth. The offer that is determined to be the best value usually wins.

In this section, each CMMI process area category and its process areas, specific goals, and specific practices are interpreted for use in business development and marketing activities, including the preparation of proposals in response to RFPs.

4.1 Project Management Process Areas

CMMI defines the project as "a managed set of interrelated resources that delivers one or more products to a customer or end user" [Chrissis 03]. In the context of business development the project is the whole of a business development campaign. The campaign (the project in CMMI terms) is an interrelated set of resources and activities that defines market strategy and product value proposition and delivers an integrated, priced proposal and follow up during the offer evaluation that results in a sale. There is continual focus on the campaign, which is the entire pre-award lifecycle with the customer. A key element of the campaign is the submittal of a commercial offer, which contains the technical description of the proposed product or service, and the culmination resulting in a successful sale and contract.

In this technical note, the CMMI Project Management category contains process areas interpreted for managing the whole of the business development, which is the campaign process. Project Management lays out the course the organization is planning to use to manage the capturing of the business. This can be similar to managing a product development project using the CMMI Project Management process areas. The business development organization cannot be successful unless the offered product or service is purchased by the customer (i.e., it all starts with a sale). Other business development concepts and activities that aid in achieving the sale (such as branding, segmentation, and differentiation) are covered in other process area categories (e.g., Engineering). The Project Management process areas are presented in Table 2:

Table 2:   Interpretation of Project Management Process Areas

Project Management	
CMMI Process Area	**Interpretation**
Project Planning	Establishing and maintaining campaign plans for business development
Project Monitoring and Control	Providing an understanding of the business development campaign and its progress, and allowing appropriate corrective action when performance deviates from the plan
Supplier Agreement Management	Managing partner and subcontractor agreements
Integrated Project Management	Establishing and managing the whole of business development activities and the involvement of relevant stakeholders according to an integrated end-to-end process
Risk Management	Identifying potential marketing problems before they occur, so that risk-handling activities may be planned and invoked as needed to mitigate adverse impacts on achieving objectives
Quantitative Project Management	N/A

4.1.1   Project Planning

In the CMMI framework, the purpose of Project Planning (PP) is to establish and maintain plans that define project activities. The interpretation of this process area for business development is for the business development organization to establish and maintain the plans for the overall campaigns that focus on capturing prospective customer business in the marketplace. Thus, in the context of business development, the *project* is the overall business development campaign. The product development organization performs the project planning that defines the costs, design, and lifecycle phases of the product being offered.

The plan can include activities such as establishing and maintaining customer relationships, producing sales campaigns, creating preliminary product definitions, and preparing proposals. The business development organization must define and the enterprise must develop the product in sufficient detail to allow an evaluation by the customer and provide a favorable comparison to a competitor's offer.

The Project Planning process area is applicable to both a solicited offer and one the selling organization makes without receiving a formal RFP (i.e., an unsolicited offer). Proposal preparation results in a written document (and often follow-up presentations) that defines the offer. The quality of the proposal, as defined by clarity, responsiveness, and pricing, will influence customer acceptance. This process area deals with overall campaign planning: planning, defining, and estimating the scope, costs, and schedule for the offered product or service, including planning the proposal preparation. (The next process area, Project

Monitoring and Control, deals with the internal process to coordinate and monitor the preparation of the offer.)

One of the key activities of the campaign is preparing the proposal. This business development activity is often a complex and costly element of the campaign because of the effort involved in preparing a formal technical and commercial proposal. Because of this complexity, this activity deserves detailed planning of its own, and it must be integrated into the overall campaign planning.

The SGs in this process area describe what must be present to develop the plans, including the schedule estimates and resources needed to establish and maintain the business development campaign, and to develop and ultimately produce the product being offered. A well-defined proposal should be based on good estimates of the scope, costs, and schedule of the offered product.

SG 4 was added to address the preparation of a sales plan. The author chose to place SG 4 within the Project Planning PA although he did consider alternatives (e.g., combining this SG with SG 2). Sales plans are important and deserve to be specifically identified as a best practice. The sales plan must be developed prior to implementing the sales campaign. The SGs and SPs for the interpretation of the Project Planning process area are presented in Table 3:

Table 3:   Interpretation of the Project Planning Process Area

Project Planning	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Estimates of project planning parameters are established and maintained.	**Estimates for business development and the capture plan are established and maintained.** *This is a process to define all information, deliverables, work products, and the resource estimates and schedule to produce and manage the business development campaign. The parameters provide input into functions such as competitive analysis, proposal preparation, and sales planning. Understanding the development of the product cost parameters is critical in establishing the price.*
SP 1.1 Establish a top-level work breakdown structure (WBS) to define the scope of the project.	Estimate the scope of the business development campaign including the scope of the product or service offered using a WBS-defined scope.
SP 1.2 Establish and maintain estimates of the attributes of the work products and tasks.	Establish detailed estimates of the campaign attributes and activities, including the estimate to create the proposal. (The estimate to produce the product or service that will be offered is created by the product development organization).

SP 1.3 Define the project lifecycle phases on which to scope the planning effort.	Define the schedule for the enterprise offer, design, procurement, and projected perspective customer award schedule. *The schedule should be consistent with customer needs.*
SP 1.4 Estimate the project effort and cost for the work products and tasks based on estimation rationale.	Establish the campaign effort and costs in addition to determining estimates of all effort including subcontractor, and partner effort to produce and deliver the product or service offered by the enterprise. Establish the total development, procurement, assembly (if applicable), and manufacturing (if applicable) costs.
SG 2 A project plan is established and maintained as the basis for managing the project.	**A plan to manage the business development campaign and develop the customer interactions, understand requirements, understand the market environment, provide sales input, and define the formal proposal effort is established and maintained.** *This SG defines both the plan for the campaign and, as one of its attributes, the proposal plan. The important milestone in the campaign is the culmination of a written proposal document in response to a customer bid specification.*
SP 2.1 Establish and maintain the project's budget and schedule.	Establish and maintain the campaign budget and schedule including the proposal preparation budget and schedule.
SP 2.2 Identify and analyze project risks.	Identify and analyze business development campaign and proposal preparation risks. An example of a risk is not having a good estimate of product development costs and contingency costs when developing the offer price to the customer. *The risks of either winning or losing the bid and the affect on the business enterprise are addressed in the Risk Management PA.*
SP 2.3 Plan for the management of project data.	Plan for the management of internal marketing and business development campaign data. *Examples of this data include sensitive pricing calculation data, contract terms and conditions, personal training records, and sales plans or contracts with partners (some data may be confidential).*
SP 2.4 Plan for necessary resources to perform the project.	Plan for necessary resources to manage and perform the campaign, including proposal preparation.
SP 2.5 Plan for knowledge and skills needed to perform the project.	Plan for knowledge and skills needed to manage and conduct the campaign and to prepare the proposal. *An important skill also needed is product commercialization and business management. (Product commercialization is the knowledge and skill of getting newly developed products adopted in the marketplace.)*

SP 2.6 Plan the involvement of identified stakeholders.	*This includes prospective customers, partners and other organizations within the enterprise*
SP 2.7 Establish and maintain the overall project plan content.	Establish and maintain the content of the documented campaign plan. Establish sub-plans such as sales plans (reference SG 5) and proposal development plans. Define the offer features, functions, and benefits.
	Specifically defining the offer features, functions, and benefits is a best practice for the proposal technical description.
SG 3 Commitments to the project plan are established and maintained.	**Commitments to the business development plan are established and maintained**.
	This specific goal addresses the commitments required for allocating all relevant resources needed to develop the proposal (which is often of long duration and involves considerable resources).
SP 3.1 Review all plans that affect the project to understand project commitments.	Review all plans that affect the campaign in order to understand their impact on campaign commitments.
SP 3.2 Reconcile the project plan to reflect available and estimated resources.	Ensure that necessary pre-proposal customer input is obtained and appropriate marketing activities are in place. Reconcile activities and milestones to reflect available and estimated resources.
	The customer sets a deadline for proposal submission; thus, the bidder must meet that date or be disqualified from the competition. The date is fixed. The process to prepare the proposal influences the quality of the proposal. Considerable planning in the pre-proposal stage is critical.
SP 3.3 Obtain commitments from relevant stakeholders responsible for performing and supporting plan execution.	NFI
	SG 4 A sales plan for major market opportunities is defined.
	The sales plan should include customer interactions, activities, and key buying criteria.
	SP 4.1 Understand who the key buying influences are in the prospective customer's organization.
	SP 4.2 Define the sales activities with prospective customers and required resources.
	Consider competitor activities and their impact.
	SP 4.3 Define timing and milestones.

4.1.2 Project Monitoring and Control

In the CMMI framework, the purpose of Project Monitoring and Control (PMC) is to provide an understanding of the project's progress so that appropriate corrective actions can be taken when the progress performance deviates significantly from the plan.

The interpretation of this process area for business development is to provide an understanding and management of the marketing campaign and sales process, to monitor the status of events to execute the strategy and tactics used to respond to prospective customer needs and an RFP, and to take action as required to move the sale forward. In the context of business development, Project Monitoring and Control's purpose is to monitor the progress of the marketing and sales campaign as defined in the plan and to take appropriate corrective actions when progress performance deviates significantly from the plan.

The marketing and sales campaign extends over a time period and includes initial customer interest, customer requirements development, receipt of bid specification, proposal preparation, and sale closure. For large, complex products, such as a new aircraft or power plant, this time period may span many months to several years. During this time, an effective business development organization will manage the sales campaign as a project. The SGs and SPs for the interpretation of the Project Monitoring and Control process area are presented in Table 4:

Table 4:   Interpretation of the Project Monitoring and Control Process Area

Project Monitoring and Control	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Actual performance and progress of the project are monitored against the project plan.	**SG 1 Actual performance is monitored against the business development and sales campaign plans.** *This is a process to continually assess the progress of the business development and sales campaign, manage customer interaction, and track the progress of the preparation of bid deliverables (e.g., the written proposal).*
SP 1.1 Monitor the actual values of the project planning parameters against the project plan.	Monitor the campaign task planning parameters.
SP 1.2 Monitor commitments against those identified in the project plan.	Monitor commitments. *This includes both internal proposal preparation and external customer interaction commitments.*
SP 1.3 Monitor risks against those identified in the project plan.	Monitor risks against those identified in the campaign plan. *This includes monitoring both the risk of not winning the contract and the risk of not meeting financial objectives if the contract is won.*

SP 1.4 Monitor the management of the project data against the project plan.	Monitor the management of business development data developed in the course of the campaign.
	As an example, the management of estimating costs and generating sensitive price data should be monitored.
SP 1.5 Monitor stakeholder involvement against the project plan.	NFI
SP 1.6 Periodically review the project's progress, performance, and issues.	Conduct progress reviews.
	Conduct periodic business development campaign and specific sales reviews for management to assess the status of the product offer and specific sales, and/or negotiation issues.
SP 1.7 Review the accomplishments and results of the project at selected project milestones.	Conduct milestone reviews throughout the business development campaign lifecycle.
	This could be specific formal milestones or formal reviews of decisions made and progress in the preparation of a proposal.
SG 2 Corrective actions are managed to closure when the project's performance or results deviate significantly from the plan.	**SG 2 Corrective actions are managed to closure when the campaign's performance or results deviate significantly from the plan.**
	When things go wrong, the business development organization and its leadership must exhibit adaptability. Adaptability is (a) the ability to see a change in the market, the environment, the customer, or the sales campaign and (b) the ability to determine and take the appropriate corrective action.
SP 2.1 Collect and analyze the issues and determine the corrective actions necessary to address the issues.	Collect and analyze business development campaign issues and determine the corrective actions necessary to address the issues.
	For example, these may include internal proposal preparation issues, external customer interaction issues, and competitor's actions and changes in the marketplace environment.
SP 2.2 Take corrective actions on identified issues.	NFI
SP 2.3 Manage corrective actions to closure.	NFI

4.1.3   Supplier Agreement Management

In the CMMI framework, the purpose of Supplier Agreement Management (SAM) is to manage the acquisition of products from suppliers for which there exists a formal agreement. The interpretation of this process area for business development is to manage the

partnerships, acquisition, and commercial integration of products, services, and components used to create the end deliverable being marketed. Major partners and subcontractors are defined during the bid and pre-award phase (execution is required in the post-award phase). Formal agreements are used to do this. The author considered defining a new PA specifically for partnering; however, partnering has been incorporated in the interpretation of SAM to minimize new PAs. Further consideration can be given during subsequent revisions of this document.

For complex technical solutions, partnering can provide a competitive advantage. A partner or subcontractor often fills gaps of expertise in the enterprise and accelerates time to market. Partnering, or strategic alliances, can provide new or innovative technology, market accessibility, and needed capital, and can spread any risk among partners. Partners and subcontractors traditionally provide a core skill not inherent in the prime's expertise.

This process area would be used by business development organizations to (1) enhance the marketability of their products and (2) establish formal agreements and interfaces during the marketing process and after the contract is awarded.

Partnering requires a strategic reason and must benefit all parties. While partnering is often a necessity in preparing large, complex offers (e.g., a next-generation jet plane), the choice of partners can provide a competitive marketplace advantage and can be important to the success of business development opportunities. The keys to partnering involve where, when, and how to partner as well as how to execute fair and trusting agreements.

A company's strategic and marketing plan process should examine business and marketing partners, the reasons for partnering, the business objectives to be accomplished, and the criteria for negotiating partner agreements.

The partnering process must define the objectives of the collaboration, financial payoffs for each partner, individual risks borne by each partner, scope of the individual efforts, cost responsibilities of each partner, marketing and sales responsibilities of each partner, and ownership of intellectual property.

Managing the partnership requires trust, top management involvement, communication, and good project management skills. In the end, the partnership should produce a win-win proposition. The SGs and SPs for the interpretation of the Supplier Agreement Management process area are presented in Table 5:

Table 5:   Interpretation of the Supplier Agreement Management Process Area

Supplier Agreement Management	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Agreements with the suppliers are established and maintained.	**Agreements with the partners and subcontractors are established and maintained.**

SP 1.1 Determine the type of acquisition for each product or product component to be acquired.	Determine the subcontractor or partner type for major product components prior to bid submittal.
SP 1.2 Select suppliers based on an evaluation of their ability to meet the specified requirements and established criteria.	Select partners and/or subcontractors based upon established criteria. Initiate the selection process early in the marketing lifecycle. *Review and evaluate the marketplace for a source of potential partners and subcontractors that add value to the offered product. Evaluate potential partners and subcontractors against defined criteria.*
SP 1.3 Establish and maintain formal agreements with the suppliers.	Establish and maintain formal agreements with partners and subcontractors.
SG 2 Agreements with the suppliers are satisfied by both the project and the supplier.	**Partner and subcontractor agreements are satisfied.**
SP 2.1 Review candidate commercial off-the-shelf (COTS) products to ensure they satisfy the specified requirements that are covered under a supplier agreement.	*Specific review of COTS products may be applicable.*
SP 2.2 Perform activities with the supplier as specified in the supplier agreements.	Execute the partner and subcontractor agreement for bid, pre-award, and post-award activities. *Perform the bid and pre-award activities with the partner(s) as specified in the agreement.*
SP 2.3 Ensure that the supplier agreement is satisfied before accepting the acquired product.	Ensure the partners and/or subcontractors offer skills and product contributions to meet the business development (and sales campaign) requirements and contract formal agreements.
SP 2.4 Transition the acquired products from the supplier to the project.	Integrate partner and subcontractor contributions into marketplace offerings such as the proposal and collateral materials.

4.1.4 Integrated Project Management

In the CMMI framework, the purpose of Integrated Project Management (IPM) is to establish and manage the project and the involvement of the relevant stakeholders according to an integrated and defined process that is tailored from the organization's set of standard processes. The interpretation of this process area for business development is to establish, manage, and integrate all business development and marketing activities in a coherent, integrated manner. It serves both internal and external customers and stakeholders.

The Integrated Project Management process area integrates the total business development activities within the business development organization and within the larger enterprise. The entire purpose, strategy, and tactics of the business development organization must be integrated for the purpose of achieving market acceptance of the enterprise's products and services at desirable financial levels. Business development, like product development, has a broad set of individual tasks that must be integrated. Examples of individual activities and tasks are pricing, proposal definition, sales management, advertising, product positioning, marketing research, and competitive analysis. Business development, to be effective, must be a broad set of disciplines that work together and that can be integrated to pursue one objective.

Process assets greatly benefit business development by providing a standard process to perform tasks routinely with repeatable results, a business development lifecycle model, and a process asset library (PAL). The contents of the PAL can be tailored to the product offering (e.g., aircraft carrier vs. computer work station). For example, a commercial offer letter contains a product description, scope of work, price, delivery, terms and conditions, and a validity period. The process and content for developing the offer letter is a candidate for reuse. Another example is a simple and routine cost/price analysis summary that can be performed in a disciplined, automated manner using a process asset. All of these activities must be integrated to form a competitive position in the marketplace.

Business development stakeholders include both internal and external groups. Internally, the business development organization must bring in business and revenue to continue the enterprise. The business development organization serves internal stakeholders and collaborates with each to define the product features, functions, and benefits in an integrated fashion. Real success comes from further integration with external stakeholders such as customers, partners, and suppliers.

In a competitive bid situation, the strategy and tactics used to manage the sales campaign will influence the outcome of the sales process. Capturing lessons learned is essential to improving business development performance. (Refer to SP 1.5.) The SGs and SPs for the interpretation of the Integrated Project Management process area are presented in Table 6:

Table 6 :   Interpretation of the Integrated Project Management Process Area

Integrated Project Management	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 The project is conducted using a defined process that is tailored from the organization's set of standard practices.	**The business development campaign is conducted using defined processes that are tailored from the organization's set of standard practices.** *Since the business development organization is comprised of a number of groups, multiple integrated, defined processes may be defined for use in specific functional activities.*

SP 1.1 Establish and maintain the project's defined process.	Establish and maintain the defined processes for the campaign.
SP 1.2 Use the organizational process assets and measurement repository for estimating and planning the project's activities.	Use the business development organizational process assets and measurement repository for estimating and planning tasks and activities of the business development campaign.
SP 1.3 Integrate the project plan and the other plans that affect the project to describe the project's defined process.	Integrate the plans (e.g., sub-plans) that affect the business development campaign. *Integrate other plans that affect the overall campaign plan such as proposal plans, risk management strategy, and sales plans. The objectives and plans for individual business development departments (e.g., proposal group and sales group) should be integrated to achieve effectiveness and to present a common, well-defined campaign.*
SP 1.4 Manage the project using the project plan, the other plans that affect the project, and the project's defined process.	Manage the business development campaign using integrated plans.
SP 1.5 Contribute work products, measures, and documented experiences to the organizational process assets.	Contribute to the business development's organizational process assets from selected business development artifacts applicable to the current campaign. *Just as software development has a process asset library so should business development. The process for performing business development should be continually improved.*
SG 2 Coordination and collaboration of the project with relevant stakeholders is conducted.	**Coordination and collaboration with relevant stakeholders within and outside of the business development organization is conducted.**
SP 2.1 Manage the involvement of the relevant stakeholders in the project.	Manage relevant stakeholder involvement in the campaign. *This could include organizations such as engineering and manufacturing.*
SP 2.2 Participate with relevant stakeholders to identify, negotiate, and track critical dependencies.	Manage dependencies and interfaces. Conduct reviews as appropriate and get agreement on future actions and commitments.
SP 2.3 Resolve issues with relevant stakeholders.	Resolve coordination issues. *This resolution extends outside of the business development department for those issues that affect customers and marketplace perceptions. It includes coordination with engineering and project organizations.*

4.1.5 Risk Management

In the CMMI framework, the purpose of Risk Management (RSKM) is to identify potential problems before they occur so that risk-handling activities can be planned and invoked as needed across the life of the product or project to mitigate adverse impacts on achieving objectives. The interpretation of this process area for business development is similar. The purpose is to identify risks before they occur and to proactively account for and mitigate adverse impacts these risks may have on achieving objectives. Risk is managed for both a specific bid opportunity and for broad market risk.

Examples of risks for business development organizations include situations in which a competitor reduces its price; introduces a new, disruptive technology; or launches a new advertising and branding campaign. Another example is when, near the end of a long, protracted buyer evaluation period, a competitor modifies its offer to provide major new user benefits at the same price.

The following are risk management questions:

- Were you prepared to react?
- Had you considered this market risk?
- Is there a mitigation or contingency plan?

Identifying and mitigating risk can allow an organization to maintain its position in the market. Failure to institute a risk management program may result in the organization losing market credibility and market share.

Marketing and marketplace posture contain numerous risks. As mentioned previously, there is a risk of not winning a critical award and there is a risk of winning the award but doing a poor job implementing it and obtaining profitability.

Without a risk management or contingency planning basis, an organization can be caught in an inferior market position. Risks should be prioritized and mitigation and contingency plans should be developed. Risks can be planned for and mitigated by doing market research (see the Requirements Development process area), having a good competitor analysis program (see the Competitive Analysis process area), improving product development and innovation continually, and having good sales plans and strategic marketing plans (and executing them effectively).

The SEI has developed a Continuous Risk Management course and workshop that can be adapted for business development and project risk management. The risk management paradigm taught in the course is one of Identify→Analyze→Plan→Track→Control while continuously communicating risk status and mitigation to all stakeholders.

Two new specific goals are included in this process area to address management limits of authority (LOA) and terms and conditions (T&C). LOA is a risk management process that defines management approval of marketplace offers based on risks and/or value. The level of

management approval required is typically based on the perceived risk inherent in an offer (e.g., a ten-year warranty period may require senior management approval). When higher priced or non-standard offers are made, higher levels of review and approval are required prior to a formal offer being submitted or a contract accepted. The evaluation of commercial risk in the contract is evaluated via the Decision Analysis and Resolution (DAR) process area. Thus a link exists between RSKM and DAR. For example DAR can be used as input to a decision on offering/accepting a one-year vs. a five-year warranty.

Terms and conditions are a set of legally defined risks and responsibilities agreed on and borne by both the supplier and buyer in the sales contract. The SGs and SPs for the interpretation of the Integrated Risk Management process area are presented in Table 7:

Table 7:   Interpretation of the Risk Management Process Area

Risk Management	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Preparation for risk management is conducted.	**NFI**
SP 1.1 Determine risk sources and categories.	NFI
SP 1.2 Define the parameters used to analyze and categorize risks, and the parameters used to control the risk management effort.	NFI
SP 1.3 Establish and maintain the strategy to be used for risk management.	Establish and maintain a business development campaign risk management strategy. *The risk management program should consider the market environment that contributes to the campaign risks.*
SG 2 Risks are identified and analyzed to document their relative importance.	**NFI**
SP 2.1 Identify and document the risks.	*The risks may be associated with an individual campaign, a set of related campaigns, or cut across all campaigns of a business development organization.*
SP 2.2 Evaluate and categorize each identified risk using the defined risk categories and parameters, and determine its relative priority.	Evaluate, categorize, and prioritize the business development campaign risks.

SG 3 Risks are handled and mitigated, where appropriate, to reduce adverse impacts on achieving objectives.	**NFI**
SP 3.1 Develop a risk mitigation plan for the most important risks to the project, as defined by the risk management strategy.	Develop a risk mitigation plan for the most important risks in the marketplace, as defined by the risk management strategy. The most important risks could include generic market risks or they could be related to a specific campaign. Develop contingency planning where appropriate. *Contingency plans provide a predefined set of alternatives or mitigation actions that can be implemented quickly when a risks is realized.*
SP 3.2 Monitor the status of each risk periodically and implement the risk mitigation plan as appropriate.	NFI
	SG 4 The limits of authority (LOA) policy is established and implemented. *An LOA policy should be developed and approved by upper management within both the business development organization and at the enterprise top management level.*
	SP 4.1 Establish a written LOA policy.
	SP 4.2 Implement the LOA policy.
	SG 5 The terms and conditions (T&Cs) applicable to proposed and contracted work are determined and reviewed for risks. *Proposal T&Cs should be approved via an LOA policy.*
	SP 5.1 Maintain baseline terms and conditions.
	SP 5.2 Contract with standard baseline, negotiated, or modified T&Cs consistent with the LOA policy.

4.2 Support Process Areas

The CMMI Support category contains process areas that cover the support of business development and marketing activities. The Support process areas are presented in Table 8:

Table 8:   Interpretation of the Support Process Areas

Support	
CMMI Process Areas	**Interpretation**
Configuration Management	Establishing and maintaining the integrity of business development documents, intermediate work products, and procedures
Process and Product Quality Assurance	Assessing the compliance of business development activities with agreed to standards, procedures, and process descriptions
Measurement and Analysis	Developing and sustaining a measurement capability that is used by business development management to monitor the effectiveness of the organization's business development process at the macro level and individual campaigns at the micro level and in support of other information needs and objectives
Decision Analysis and Resolution	Analyzing possible business development decisions using a formal evaluation process
Causal Analysis and Resolution	Identifying the cause of business development disappointments, losses, and other related marketplace perceptions and taking corrective actions

4.2.1   Configuration Management

In the CMMI framework, the purpose of Configuration Management (CM) is to establish and maintain the integrity of work products using configuration identification, configuration control, configuration status accounting, and configuration audits. The interpretation of this process area for business development is to establish and maintain the integrity of documents and procedures for both intermediate and final work products. This integrity is important for business development organizations because proposals become contracts.

In a business development organization, configuration management can include automated cost/price summaries, proposal templates, contract terms and conditions, personal records, training records, and marketing or strategic plans as appropriate. (Some parts of these may be confidential.) An important need for this process area could be maintaining a standard product proposal or proposal template on an intranet Web site or controlling changes to an emerging proposal during a campaign. It is important to place external documents under configuration management because they may become part of a legally binding, commercial contract.

In a complex offer, such as a new jet fighter or nuclear power plant, the proposal will be a combination of standard and customized text. The configuration of the standard template text must accurately define what is being offered and its integrity must be maintained. The SGs

and SPs for the interpretation of the Configuration Management process area are presented in Table 9:

Table 9:   Interpretation of the Configuration Management Process Area

Configuration Management	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Baselines of identified work products are established.	**NFI**
SP 1.1 Identify the configuration items, components, and related work products that will be placed under configuration management.	Identify items to be under configuration management. *Examples include standard proposal technical descriptions, baseline terms and conditions, limits of authority documents, pricing templates, and cost data. Having a standard document enhances productivity, but it must accurately describe the product being offered.*
SP 1.2 Establish and maintain a configuration management and change management system for controlling work products.	NFI
SP 1.3 Create or release baselines for internal use and for delivery to the customer.	Establish baselines for external customer deliverables, such as proposal text in a proposal template.
SG 2 Changes to the work products under configuration management are tracked and controlled.	**NFI**
SP 2.1 Track change request for the configuration items.	NFI
SP 2.2 Control changes to the configuration items.	NFI *Personnel in the business development organization and external to the organization may initiate change requests. A change control board can authorize changes.*
SG 3 Integrity of baselines is established and maintained.	**NFI**
SP 3.1 Establish and maintain records describing configuration items.	NFI

SP 3.2 Perform configuration audits to maintain integrity of the configuration baselines.	NFI *Periodic audits will help ensure that unintended or unfulfilled (but authorized) changes are identified early so that corrective action can be taken in a timely manner. Audits will also identify if proposed changes have been made to specified documents.*

4.2.2 Process and Product Quality Assurance

In the CMMI framework, the purpose of Process and Product Quality Assurance (PPQA) is to provide staff and management with objective insight into processes and associated work products. The interpretation of this process area for business development is to assess the compliance of business development processes with predetermined standards, procedures, and process descriptions in order for management to gain insight into the conformity and effectiveness of the organization's actions, strategies, and tactics. This objective insight can aid in assuring campaign (including the proposal) quality.

For example, the process to develop a major proposal in response to a customer bid specification may be audited. The process used to define the product offered can be evaluated.

Another example of Process and Product Quality Assurance is an evaluation of the process used to structure costs into a large, complex offering. Significant cost components may come from a subcontractor. The organization should have a defined process to obtain subcontractor prices and defined responsibilities. This process area would audit the effectiveness of obtaining the subcontractor's price. The business development organization's compliance with the defined process when obtaining and integrating subcontractor prices could serve as one basis of evaluation of the effectiveness of the process. The SGs and SPs for the interpretation of the Process and Product Quality Assurance process area are presented in Table 10:

Table 10: Interpretation of the Process and Product Quality Assurance Process Area

Process and Product Quality Assurance	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Adherence of the performed process and associated work products and services to applicable process descriptions, standards, and procedures is objectively evaluated.	NFI

SP 1.1 Objectively evaluate the designated performed processes against the applicable process descriptions, standards, and procedures.	NFI
SP 1.2 Objectively evaluate the designated work products and services against the applicable process descriptions, standards, and procedures.	Evaluate selected business development work products against process descriptions, standards, and procedures. *For example, a proposal that is delivered to a prospective customer can be evaluated as a work product.*
SG 2 Noncompliance issues are objectively tracked and communicated, and resolution is ensured.	NFI
SP 2.1 Communicate quality issues and ensure resolution of noncompliance issues with the staff and managers.	NFI
SP 2.2 Establish and maintain records of the quality assurance activities.	*NFI*

4.2.3   Measurement and Analysis

In the CMMI framework, the purpose of Measurement and Analysis (MA) is to develop and sustain a measurement capability that is used to support management information needs. The interpretation of this process area for business development is to develop and sustain a measurement capability that is used by business development management to support management information needs and to monitor the effectiveness of the organization's marketplace success.

The measurement capability should (1) provide data to manage the campaign and (2) be aligned with strategic and business plans and objectives.

Some examples of results to measure include effort, resources, number of campaign defects, quality of prospective customer interactions, senior executive customer meetings, proposal acceptance rate (i.e., won/loss analysis), market share data, advertising effectiveness, customer satisfaction, and profitability by customer or product line. Obtaining marketplace and customer data, via formal marketing research, can contribute to increased business development effectiveness. (*Refer to the market research discussion included in the Requirements Development process area.*)

Similar to engineering organizations, (1) business development performance can be tracked and (2) strategic, organizational, and process changes can be based on (and driven by) an understanding of the performance of the business development process. Various measurement

and analysis tools and techniques may be applicable to business development activities and issues (e.g., SEI's Goal-Question-Indicator-Metric (GQIM) and Six Sigma). The SGs and SPs for the interpretation of the Measurement and Analysis process area are presented in Table 11:

Table 11: Interpretation of the Measurement and Analysis Process Area

Measurement and Analysis	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Measurement objectives and activities are aligned with identified information needs.	**NFI**
SP 1.1 Establish and maintain measurement objectives that are derived from identified information needs and objectives.	NFI
SP 1.2 Specify measures to address the measurement objectives.	*In addition to measurements for tracking campaign progress (such as business development costs, effort, campaign defects, prospective customer interactions, senior executive customer meetings, and proposal acceptance rates), a business development organization must understand the size of the available market, the competition's market share, and customers' buying histories.*
SP 1.3 Specify how measurement data will be obtained and stored.	Specify data collection and storage procedures.
SP 1.4 Specify how measurement data will be analyzed and reported.	NFI
SG 2 Measurement results that address identified information needs and objectives are provided.	**NFI**
SP 2.1 Obtain specified measurement data.	NFI
SP 2.2 Analyze and interpret measurement data.	NFI
SP 2.3 Manage and store measurement data, measurement specifications, and analysis results.	NFI

SP 2.4 Report results of measurement and analysis activities to all relevant stakeholders.	*In a business development organization, relevant stakeholders include a broad group of individuals involved in sales, proposal management, pricing, terms and conditions, market research, and planning.*

4.2.4   Decision Analysis and Resolution

In the CMMI framework, the purpose of Decision Analysis and Resolution (DAR) is to analyze possible decisions using a formal evaluation process that evaluates identified alternatives against established criteria. This purpose is also applicable to business development without further interpretation.

For business development organizations, this process area can be used to evaluate the introduction of new products, define niche markets, analyze alternative partners, and analyze the customer's cost/benefit of new product features.

An example of Decision Analysis and Resolution applied to a business development organization in a routine fashion is a bid/no bid decision. The preparation of a proposal can be expensive and resource intensive. If the probability of winning the bid is low, perhaps the limited resources could be utilized in a higher probability endeavor. Many customers can be characterized as transactional. They have little loyalty and buy on the basis of price. Limited business development resources may be better served by focusing on more loyal and value-oriented customers.

The impact of customer requested commercial terms (e.g., warranties) should be analyzed via a standard, defined process. Refer to the Risk Management process area for associated practices.

The SG and SPs for the interpretation of the Decision Analysis and Resolution process area are presented in Table 12:

Table 12:   Interpretation of the Decision Analysis and Resolution Process Area

Decision Analysis and Resolution	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Decisions are based on an evaluation of alternatives using established criteria.	*The impact of a marketing decision can be more profound for high-risk areas. For example, the decision to offer a new design for an airplane may determine the future of the enterprise. A decision of this magnitude must result from a collaboration of the business development, projects, and engineering organizations.*

SP 1.1 Establish and maintain guidelines to determine which issues are subject to a formal evaluation process.	*The significance of the decision can have an impact beyond one project. It can impact the future viability of the enterprise. For example, the decision to launch numerous satellites for telephone communications without enough market research regarding the market can result in excessive debt when there are few customers. The guidelines can recommend the use of a formal evaluation approach when the impact from making the wrong decision is unacceptably high (or the risk is high). The guidelines can quantify this to some degree.*
SP 1.2 Establish and maintain the criteria for evaluating alternatives, and the relative ranking of these criteria.	NFI
SP 1.3 Identify alternative solutions to address issues.	NFI
SP 1.4 Select the evaluation methods.	NFI
SP 1.5 Evaluate alternative solutions using the established criteria and methods.	NFI
SP 1.6 Select solutions from the alternatives based on the evaluation criteria.	Make marketplace decisions and select solutions from the alternatives based on the evaluation criteria.

4.2.5   Causal Analysis and Resolution

In the CMMI framework, the purpose of Causal Analysis and Resolution (CAR) is to identify the causes of defects and other problems and take action to prevent them from occurring in the future. The interpretation of this process area for business development is to investigate and identify the cause of ineffective business development campaigns, marketplace disappointments, competitive losses, and other related marketplace perceptions and to take corrective actions.

Root cause analysis is widely used in the engineering field to determine why products have failed to meet design standards, are unreliable, do not meet their intended functionality, and have failed prematurely. This analysis identifies needed changes in a product's design or development process used. Root cause analysis and other causal analysis techniques can be used in a business development setting as well.

The cause of the loss of a large order should be understood so that changes can be made in subsequent offers. Perhaps a loss was caused by the price, product offering, or poor sales process. The loss may have been based on prior poor quality or performance. Sometimes companies lose prospective sales, and sometimes they are outsold by the competition. A causal analysis process can determine why the sale was lost, just as a causal analysis process

can determine why a product failed. Lessons learned (what won the job and what lost the job) should be documented and used in defining future offers.

In addition to highly visible items as noted above, Causal Analysis and Resolution also should be applied to routine activities. Much of this process area's value can be used to continuously improve marketing and business development campaigns. More routine problems and issues may be caused by miscommunications or lack of focus on details. As an example, a failure to include a good description of a product feature in a written proposal may negatively affect the evaluation. Quite often the customer's decision is influenced by soft dollar items such as the perception of the product brand. The SGs and SPs for the interpretation of the Causal Analysis and Resolution process area are presented in Table 13:

Table 13:   Interpretation of the Causal Analysis and Resolution Process Area

Causal Analysis and Resolution	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Root causes of defects and other problems are systematically determined.	**The root causes of business development (challenging situations), marketplace disappointments, and failures to meet objectives are systematically determined.**
SP 1.1 Select the defects and other problems for analysis.	Select the business development defects or failure for analysis.
SP 1.2 Perform causal analysis of selected defects and other problems and propose actions to address them.	Perform causal analysis of the selected items and propose actions to address it.
SG 2 Root causes of defects and other problems are systematically addressed to prevent their future occurrence.	**The causes of the marketing issues and problems are systematically addressed to prevent their future occurrence.** *These business development defects could be of a routine nature or could be a highly visible failure to meet a marketing or sales objective.*
SP 2.1 Implement the selected action proposals that were developed in causal analysis.	NFI
SP 2.2 Evaluate the effect of changes on process performance.	Evaluate the effect of the change on campaign performance and its end objectives. *In a sales situation, the customer often sets the overall schedule. The business development organization must set its milestones based on the customer schedule. Evaluate how changes impact the organization's ability to be agile and flexible.*

SP 2.3 Record causal analysis and resolution data for use across the project and organization.	Record the corrective action data for future implementation across the business development organization.

4.3 Process Management Process Areas

The CMMI Process Management category contains process areas that cover business development process management.

Every employee doing business development must be committed to accomplishing the mission of the business enterprise. Everyone has their job to perform and is dependent on other team members for information sharing and input. Effective teamwork will contribute to improved business results.

While not specifically defined as a process area, perseverance and follow through (not just individual performance and follow through but also organizational perseverance and follow through) positively affect business performance.

The process areas in this category can leverage the teamwork between the business development organization and other organizations within the enterprise. Synergy and teamwork can be integrated across the enterprise with its CMMI process improvement initiatives through implementation of these process areas. The Process Management process areas are presented in Table 14:

Table 14:   Interpretation of the Process Management Process Areas

Process Management	
CMMI Process Areas	**Interpretation**
Organizational Process Focus	Planning and implementing organizational process improvement within the business development organization
Organizational Process Definition	Establishing and maintaining a usable set of business development process assets
Organizational Training	Developing the skills and knowledge of people in the business development organization so that they can perform their roles effectively and efficiently
Organizational Process Performance	N/A
Organizational Innovation and Deployment	Selecting and deploying incremental and innovative improvements to business development processes and technologies

4.3.1 Organizational Process Focus

In the CMMI framework, the purpose of Organizational Process Focus (OPF) is to plan and implement organizational process improvement based on a thorough understanding of the

current strengths and weaknesses of the organization's processes and process assets. The interpretation of this process area for business development is similar. The SGs and SPs for the interpretation of the Organizational Process Focus process area are presented in Table 15:

Table 15: Interpretation of the Organizational Process Focus Process Area

Organizational Process Focus	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Strengths, weaknesses, and improvement opportunities for the organization's processes are identified periodically and as needed.	Determine process improvement opportunities within the business development organizations and with people who interface with the organization.
SP 1.1 Establish and maintain the description of the process needs and objectives for the organization.	NFI
SP 1.2 Appraise the process of the organization periodically and as needed to maintain an understanding of its strengths and weaknesses.	NFI
SP 1.3 Identify improvements to the organization's processes and process assets.	NFI
SG 2 Improvements are planned and implemented, organizational process assets are deployed, and process-related experiences are incorporated into the organizational process assets.	*An example is proposal template. Proposal templates represent a key business development asset and should be continually improved.*
SP 2.1 Establish and maintain process action plans to address improvements to the organizational process assets.	Establish process action plans that can improve the effectiveness of the business development process.
SP 2.2 Implement process action plans across the organization.	NFI
SP 2.3 Deploy organizational process assets across the organization.	NFI

SP 2.4 Incorporate process-related work products, measures, and improvement information derived from planning and performing the process into the organizational process assets.	NFI

4.3.2 Organizational Process Definition

In the CMMI framework, the purpose of Organizational Process Definition (OPD) is to establish and maintain a usable set of organizational process assets. The interpretation of this process area for business development is similar. Four new process areas that are specific to business development have been added in this technical note. These new process areas should also be covered by the business development organization's set of standard processes.

SG 2 was added to formally transmit the order commitments to the product development organization. The author considered placing this SG in another PA; however, after evaluating alternatives he elected to place it here. Further consideration can be given during subsequent revisions of this document.

Once the sale is made, the processes used to develop, deliver, maintain, and support the product for the customer are performed. These processes must be defined by the organization within the enterprise that is responsible for these phases of the product lifecycle (e.g., engineering, manufacturing, and product support). These processes are not covered in this technical note.

In his text titled *Competitive Advantage: Creating and Sustaining Superior Performance,* Michael Porter describes the value chain [Porter 85]. Porter writes, "Every organization is a collection of activities that are performed to design, produce, market, deliver, and support its product." All of these activities can be pictured as a chain. For example, a business development sub-chain may be made up of business development management, advertising, sales force administration, and technical literature. Value chains can and should be competitive advantages. The enterprises that have the strongest links in the chain are the most competitive. Those with weak links are the least competitive.

The SGs and SPs for the interpretation of the Organizational Process Definition process area are presented in Table 16:

Table 16: Interpretation of the Organizational Process Definition Process Area

Organizational Process Definition	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 A set of organizational process assets is established and maintained.	NFI

SP 1.1 Establish and maintain the organization's set of standard processes.	Establish and maintain standard processes for the conduct of business development operations. *It is also necessary to structure a process to formally accept an order and to communicate the scope and commitments to all affected organizations (e.g., projects, engineering, and manufacturing).*
SP 1.2 Establish and maintain descriptions of the lifecycle models approved for use in the organization.	Establish and maintain descriptions of the business development lifecycle used within the organization. *Care must be taken to safeguard any plans and strategies that are confidential and/or proprietary.*
SP 1.3 Establish and maintain the tailoring criteria and guidelines for the organization's set of standard processes.	NFI
SP 1.4 Establish and maintain the organization's measurement repository.	Establish and maintain the business development and marketing operation's measurement repository.
SP 1.5 Establish and maintain the organization's process asset library.	NFI *Examples include standard proposal text, baseline contract terms and conditions, bid checklists, and approval process templates.*
	SG 2 Formally transmit the order commitments to the affected enterprise organizations. *The enterprise organizations that are responsible for fulfilling the order, as negotiated by the business development organization, must be aware of all customer commitments.*
	SP 2.1 A formal definition of customer commercial and technical commitment is provided to all affected parties.
	SP 2.2 Monitor and enforce the process for order turnover (Refer to the Process and Product Quality Assurance process area).

4.3.3   Organizational Training

In the CMMI framework, the purpose of Organizational Training (OT) is to develop the skills and knowledge of people so they can perform their roles effectively and efficiently. The interpretation of this process area for business development is identical.

Examples of training for business development personnel include sales force training, proposal preparation training, and strategic planning skill development.

Many organizations offer courses but provide limited follow-up. People learn from reading books and taking courses, but they also learn from their own experiences and mentors. Creating a culture of mentoring can be an integral part of a marketing and sales training program, and it is often overlooked in organizations. Effective leaders must also be teachers, conveying their skills to others in their organization. The SGs and SPs for the interpretation of the Organizational Training process area are presented in Table 17:

Table 17: Interpretation of the Organizational Training Process Area

Organizational Training	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 A training capability that supports the organization's management and technical roles is established and maintained.	**A business development training capability is established.** *Examples include market strategy and sales technique training.*
SP 1.1 Establish and maintain the strategic training needs of the organization.	NFI
SP 1.2 Determine which training needs are the responsibility of the organization and which will be left to the individual project or support group.	Determine which training needs are the responsibility of the business development organization and which can be left for an individual campaign. *Training can be performed by outside organizations under the oversight of the business development organization.*
SP 1.3 Establish and maintain an organizational training tactical plan.	Establish and maintain a plan for business development training.
SP 1.4 Establish and maintain training capability to address organizational training needs.	*The training needs of the business development organization can be addressed by the business development organization itself, by the enterprise's training program, by external training or, in part, by the particular campaign team. This SP covers the first three of these alternative training means.*
SG 2 Training necessary for individuals to perform their roles effectively is provided.	**NFI**
SP 2.1 Deliver the training following the organizational training tactical plan.	NFI
SP 2.2 Establish and maintain records of the organizational training.	NFI

SP 2.3 Assess the effectiveness of the organization's training program.	NFI

4.3.4   Organizational Innovation and Deployment

In the CMMI framework, the purpose of Organizational Innovation and Deployment (OID) is to select and deploy incremental and innovative improvements that measurably improve the organization's processes and technologies. The improvements support the organization's quality and process-performance objectives as derived from the organization's business objectives. The interpretation of this process area for business development is identical.

Successful companies continually innovate by introducing new product and process technology (possibly developed within a CMMI product development environment). They also innovate by introducing new customer value propositions and benefits. These organizations stay one step ahead of the competition.

These improvements can span the range from a simple checklist to a more sophisticated customer relationship management (CRM) application that implements organizational processes.

Examples of the business development organization's objectives include decreased quotation time, number of new initiatives, improved customer satisfaction, improved price realization, and improved market share. The SGs and SPs for the interpretation of the Organizational Innovation and Deployment process area are presented in Table 18:

Table 18:   Interpretation of the Organizational Innovation and Deployment Process Area

Organizational Innovation and Deployment	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Process and technology improvements that contribute to meeting quality and process-performance objectives are selected.	Select improvement opportunities that have a business development organization improvement or a marketplace payoff.
SP 1.1 Collect and analyze process- and technology-related improvement proposals.	NFI

SP 1.2 Identify and analyze innovative improvements that could increase the organization's quality and process performance.	Identify and analyze innovative improvements that could increase the business development organization's (and thus the enterprise's) success in the marketplace and in achieving marketplace goals.
	Examples include measuring customer satisfaction, obtaining better awareness of the organizations products at reduced costs, and achieving better pricing realization through innovative pricing strategies.
SP 1.3 Pilot process and technology improvements to select which ones to implement.	*Pilot in order to better understand the impacts that the improvement may have for different groups within the business development organization (e.g., proposal group, the commercial/pricing group, and the competitor analysis group).*
SP 1.4 Select process and technology improvement proposals for deployment across the organization.	*Process improvement proposals and commercial innovations are selected for deployment across the business development organization.*
SG 2 Measurable improvements to the organization's processes and technologies are continually and systematically deployed.	Deploy business development process improvements. *For example, a system to decrease the time in which a prospective customer receives requested product information.*
SP 2.1 Establish and maintain the plans for deploying the selected process and technology improvements.	NFI
SP 2.2 Manage the deployment of the selected process and technology improvements.	NFI
SP 2.3 Measure the effects of the deployed process and technology improvements.	Measure the effect of the deployed process as it relates to the realization of improved business objectives.

4.4 Engineering Process Areas

The CMMI Engineering process areas cover the development and maintenance activities that are shared across engineering disciplines. The Engineering category for business development contains process areas that provide fundamental and essential activities. Four new process areas (Relationship Management, Competitive Analysis, Pricing, and Branding and Promotion) have been created for this category to further add to the disciplined and robust business development process. These new process areas are essential in the business development campaign. The author considered placing these process areas into the Support category; however, he elected to include them in Engineering. Further consideration can be

given during subsequent revisions of this document. The Engineering process areas are presented in Table 19:

Table 19: Interpretation of the Engineering Process Areas

Engineering	
CMMI Process Areas	**Interpretation**
Requirements Management	Managing internal business development functional requirements and managing the customer requirements of the organization's products to ensure that the customer requirements in the RFP are compatible with the enterprises' product features
Requirements Development	Understanding and having an effect on customer requirements in the RFP, conducting market research, and forecasting market trends
Technical Solution	Designing, developing, and implementing business development solutions to customer requirements that will be successful in the marketplace
Product Integration	Offering a properly integrated proposal that provides marketplace differentiation
Verification	Ensuring that the business development campaign and the proposal is reviewed prior to submission.
Validation	Validating that the proposed product or service meets the intended customer and marketplace need and demonstrating that there is a willing market
Relationship Management (new)	Establishing and maintaining excellent customer relations
Competitiveness Analysis (new)	Understanding the products, services, strategy, and customer perceptions of competing organizations
Pricing (new)	Pricing the offer appropriately
Branding and Promotion (new)	Establishing a favorable marketplace image of the organization and its products

4.4.1 Requirements Management

In the CMMI framework, the purpose of Requirements Management (REQM) is to manage the requirements of the project's products and product components and identify inconsistencies between those requirements and the project's plans and work products. The interpretation of this process area for business development is twofold for an organization. Internally, this process area is used to define requirements for the business development functions that need to be effectively articulated to achieve a successful campaign. Externally, this process area is used to understand the customer requirements, articulate them to the enterprise for developing and offering the enterprise's products and product components, and

identify inconsistencies between these requirements and the enterprise's plans and work products.

In CMMI, Requirements Managements and Requirements Development (RD) refer to the project, which is the mechanism by which a product is developed. In the Project Planning process area, the business development *project* was defined as the overall business development campaign. REQM and RD can then refer to the requirements of the campaign (e.g., to define and manage the requirements of the business development function). While this point is interesting, it may be more important and may have a bigger impact on successfully capturing the award if REQM and RD are focused on the external prospective customer. If the business development organization does not understand the prospective customer's requirements and needs, it negatively impacts the probability of winning the contract. Therefore, the business development interpretation of these process areas will focus on the external prospective customer. The requirements for the business development campaign will then be derived requirements that also fall into the scope of both REQM and RD.

For business development organizations, this process area also ensures that customer requirements are transmitted to product development and are designed into or addressed in the offered product. REQM is closely tied the to Requirements Development process area. The role of the business development organization is to have an effect on the customer's specifications and be the voice of the customer within the enterprise. The SGs and SPs for the interpretation of the Requirements Management process area are presented in Table 20:

Table 20: Interpretation of the Requirements Management Process Area

Requirements Management	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Requirements are managed and inconsistencies with project plans and work products are identified.	**Externally, inconsistencies with the prospective customer's requirement needs and the enterprise's work products are identified. Internally business development functional needs and requirements are understood and managed within the organization.**
SP 1.1 Develop an understanding with the requirement providers on the meaning of the requirements.	Develop an understanding of the actual and potential requirements with the prospective customers and the full awareness of their needs. *The requirements may become part of a prospective customer's formal solicitation specification.*
SP 1.2. Obtain commitment to the requirements from the project participants.	During preparation of the proposal, discuss and document the response to the customer requirements with the engineering and proposal participants. *If a bidding organization cannot meet a customer requirement, an alternative feature or function is encouraged.*

SP 1.3 Manage changes to the requirements as they evolve during the project.	Manage changes to the offered product as the customer's requirements evolve during the bidding process and as the enterprise's development capabilities evolve.
SP 1.4 Maintain bidirectional traceability among the requirements and the project plans and work products.	Trace the source of the requirements to a specific organization (e.g., the customer or the company's internal engineering organization).
SP 1.5 Identify inconsistencies between the project plans and work products and the requirements.	Identify inconsistencies between the enterprise's work products and the customer requirements.

4.4.2   Requirements Development

In the CMMI framework, the purpose of Requirements Development (RD) is to produce and analyze customer, product, and product component requirements. The interpretation of this process area for business development is to understand and have an effect on the customer's requirements. In this technical note, the focus of Requirements Development is primarily on the external prospective customer. Superior business development organizations will provide input to the customer's bid specifications by continual communication with the customer regarding its needs and the enterprise's product development activities. An enterprise has the ability to be more competitive if its offer more closely meets the prospective customer requirements than the competitor's. Also, for business development interpretation, Requirements Development covers market research and forecasting in order to understand global customer requirements and buying needs. The author considered including Segmentation and Market Research in a Support category; however, he elected to include it in Requirements Development (RD). Further consideration can be given during subsequent revisions of this document.

In a fast-paced, high-technology environment where new technology is introduced everyday, customer and market data are essential for maintaining or increasing market share. The business landscape is littered with companies that failed to keep up with customer needs, technology introductions, and contemporary trends. Better decisions are made when an organization has market intelligence. This market research is important in two ways:

- **Customer needs** – Just because you design and build it, do not expect it to be purchased. The product must resolve a customer problem or fulfill a customer need. Market research can help define what customers need.
- **Future market trends** – Product research and development is expensive, but nearly 70% of new product introductions do not meet the business, marketplace, and financial objectives of the organization. Market research can play an important role in establishing product development priorities. The results of the market research must be actionable (i.e., the results should benefit the business in future actions).

Another function included in this process area interpretation is a specific goal that addresses market segmentation in order to target opportunities based upon differing groupings of customer attributes. Great business development organizations target and tailor their products to specific market niches (i.e., market segmentation).

Markets, customers, and industries are not all alike. Different segments buy because of different factors. For example, markets can be segmented by price, geography, technology proficiencies, size, and demographics. Often products are designed for specific segments in mind.

Market segmentation is an important marketing concept. Designing one product for many different market segments usually leads to undesirable market penetration. On the other hand, one must be mindful of over customizing products to the point of adversely affecting development and production costs. Selling one product in all market segments often results in substandard marketplace acceptance. Understanding each niche is essential for superior performance. General Motors targets market segments with their different brands. For example, Cadillacs are targeted to the luxury market segment, while Saturns are targeted to the cost-conscious market segment.

This process area also includes the creation of an elevator speech for the enterprise and/or product. An elevator speech is a concise statement of the competitive advantage and need fulfillment of the product (or enterprise). It is so concise that a person should be able to deliver it on an elevator ride. It should be a statement that helps differentiate the product or enterprise from the competition.

Interpretation of this process area also addresses the understanding of the customer's evaluation process. If the contractor understands the criteria and the process for evaluating the bids, a more responsive offer can be prepared. The SGs and SPs for the interpretation of the Requirements Development process area are presented in Table 21:

Table 21:   Interpretation of the Requirements Development Process Area

Requirements Development	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Stakeholder needs, expectations, constraints, and interfaces are collected and translated into customer requirements.	**Customer Requirements are understood.** *Marketplace needs, expectations, constraints, and interfaces are collected and translated into business development requirements.* *The business development organization should establish a relationship with the prospective customer in order to provide input to their formal specification and to refine requirements that can be developed and become part of the offer. The more closely the prospective customer's requirements and the enterprise's standard or baseline offering match, the less negative effect there is on development costs and schedule.*
SP 1.1 Elicit stakeholder needs, expectations, constraints, and interfaces for all phases of the product lifecycle.	Obtain an understanding of prospective customer requirements, expectations, constraints, and interfaces. *Obtain prospective business development needs for all lifecycle phases from development to operations and disposal.* **The customer evaluation process is understood.** *In order to improve the success of capturing the award, the business development organization must understand and model the prospective customer's evaluation criteria.*
SP 1.2 Transform stakeholder needs, expectations, constraints, and interfaces into customer requirements.	Transform prospective customer needs, expectations, constraints, and interfaces into business development requirements that are used by engineering and business development for marketplace value propositions.
SG 2 Customer requirements are refined and elaborated to develop product and product component requirements.	*Business development does not typically play a role in translating customer requirements into technical terms that become technical product component requirements. This is the role of the engineering and product development organization.*
SP 2.1 Establish and maintain product and product component requirements, which are based on the customer requirements.	N/A
SP 2.2 Allocate the requirements for each product component.	N/A

SP 2.3 Identify interface requirements.	Identify the interfaces between the product being offered by the enterprise and the other products and services used by the customer to derive system function.
SG 3 The requirements are analyzed and validated, and a definition of required functionality is developed.	**The business development requirements are analyzed and validated, and a definition of required functionality and other attributes are developed and can be validated and proposed in the formal marketing offer.** *Validation may completed with trade studies, competitive analysis, etc.*
SP 3.1 Establish and maintain operational concepts and associated scenarios.	Document and understand operational concepts and scenarios associated with the prospective customer's requirements.
SP 3.2 Establish and maintain a definition of required functionality.	Understand and develop a definition of the prospective customer's required functionality.
SP 3.3 Analyze requirements to ensure that they are necessary and sufficient.	Analyze requirements to understand customer needs and constraints.
SP 3.4 Analyze requirements to balance stakeholder needs and constraints.	Analyze customer requirements to ensure that they are achievable. If they are not, initiate a dialog with the customer regarding alternatives. Perform sufficient pre-bid engineering to validate that the offered product can be developed as offered, within price, cost, and schedule constraints. Analyze requirements for the purpose of reducing user and customer total costs of ownership (TCO) and risks of using the product or service.
SP 3.5 Validate requirements to ensure the resulting product will perform as intended in the user's environment using multiple techniques as appropriate.	*Validation should be performed as early in the bidding cycle as possible so that the enterprise's offering can be defined to meet the prospective customer requirements.* *Prototypes, analysis, and simulations can help ensure that the resultant marketplace offering meets customer needs. If the customer evaluation criteria and process is understood, it can be modeled and the results fed back into modifying the offer if appropriate.*
	SG 4 Products and services are designed and offered that reflect the needs of different market segments. *Market segment strategies may include different segment pricing, product features, advertising program, and sales channels.*

	SP 4.1 Analyze and understand market segments.
	Perform screening or test market the product for acceptance in the specific market segment. Analyze the impact of the defined offering among the different segments.
	Examples of segment environmental factors include size of market, segment demographics, geographical distribution, and user mission.
	SP 4.2 Tailor products or services for specific segments.
	SP 4.3 Define a marketing strategy and sales plan for each market segment.
	SP 4.4 Establish and maintain detailed market research strategies, tactics, and implementation activities for different market segments.

4.4.3 Technical Solution

In the CMMI framework, the purpose of Technical Solution (TS) is to design, develop, and implement solutions to requirements. The interpretation of this process area for business development is to offer solutions to business development goals, objectives, and needs that will be successful in the marketplace. (*Refer to the Requirements Management and Requirements Development process areas for further discussion of this focus.*)

Sufficient design and development must be performed in order to provide a credible offer with acceptable risk. Solutions and their designs encompass products, product components, and lifecycle services either singly or in combinations as appropriate. This process area specifies practices that can be used to evaluate alternate technical solutions to customer needs, specifications, and requirements.

The business development organization should not define just the product but should define what is being sold. For example, a business development enterprise could be selling service, total cost of ownership, efficiency, and productivity. Branding and Promotion is a related process area.

The product should have a positioning statement. The positioning statement summarizes the compelling reasons why a customer in the target market segment should buy the differentiated product. Positioning examines the elements of the value chain that contribute to the differentiation in the defined market segment.

Geoffrey Moore, in his book *Crossing the Chasm,* introduces the concept of the "whole product" [Moore 02]. Consider an automobile as an example. If an infrastructure for the supply of gasoline were not readily available, automobiles would not be sold easily even if the quality and luxury were exquisite. In the case of some technology products (e.g., computers), documentation makes the product more usable. The whole product concept

contributes to a complete solution and differentiation. The SGs and SPs for the interpretation of the Technical Solution process area are presented in Table 22:

Table 22: Interpretation of the Technical Solution Process Area

Technical Solution	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Product or product component solutions are selected from alternative solutions.	**Products and product component solutions that can be successful in the marketplace are selected.** *The entire business development process and campaign is germane to the alternative solution considerations and RFP process. The impact on the pricing, proposal, branding, competitive position, etc. are important to consider when matching marketplace solutions to customer needs.* *The practices in SG 1 are often jointly performed with the enterprise's engineering organization.*
SP 1.1 Develop alternative solutions and selection criteria.	Develop alternative solutions and selection criteria for products and product components that are to be offered in a competitive marketplace. *The business development organization should establish a compelling reason to buy. (This is related to the Branding and Promotion process area.)*
SP 1.2 Evolve the operational concept, scenarios, and environments to describe the conditions, operating modes, and operating states specific to each product component.	Understand prospective customer and market operational concepts, scenarios, and environments that define the conditions, operating modes, and operating states specific to prospective customer needs.
SP 1.3 Select the product component solutions that best satisfy the criteria established.	Select product component solutions based on marketplace and the enterprise's engineering organization's feedback and input.
SG 2 Product or product component designs are developed.	**The product to be offered in the marketplace is developed.** *While the product design is the responsibility of the engineering organization, the business development organization must provide input into the design selection to increase the commercial success in the marketplace.*

SP 2.1 Develop a design for the product or product component.	NFI
SP 2.2 Establish and maintain a technical data package.	Establish a user data package consisting of information and data to be used by a prospective customer to evaluate the product in the customer's application.
SP 2.3 Design comprehensive product component interfaces in terms of established and maintained criteria.	Define interfaces that match the enterprise's product and the customer's application needs. *Interfaces that result in favorable costs, schedule, customer integration, and ease of operation provide competitive advantages. The business development organization should be cognizant of the impact that interfaces can have on prospective customers. The detailed method of developing the product is the responsibility of the engineering organization.*
SP 2.4 Evaluate whether the product components should be developed, purchased, or reused based on established criteria.	*The business development organization may provide input into how the use of additional partners or suppliers impact the campaign, branding, etc.*
SG 3 Product components, and associated support documentation, are implemented from their design.	**The solutions are described in marketing literature and in the proposal.**
SP 3.1 Implement the designs of the product components.	Manage the marketing and business development campaign to commercialize the enterprise's defined product.
SP 3.2 Develop and maintain the end-use documentation.	N/A *The user documentation (e.g., operator's manual or maintenance manual) is developed by the engineering organization.*

4.4.4   Product Integration

In the CMMI framework, the purpose of Product Integration (PI) is to (1) assemble the product from product components; (2) ensure that the product, as integrated, functions properly; and (3) deliver the product. The interpretation of this process area for business development is generally focused internally to integrate all functions of the business development campaign in order to offer a properly competitive product that provides marketplace differentiation (i.e., deliver a product that has value to the customer and that is

different than competing products). Some examples of functions to be integrated include pricing, technical descriptions, terms and conditions, key buying influence needs, and appropriate information learned from competitive analysis.

This process area is one of the most important to business development. Advantage over a competing product is gained by creating product differentiation in a defined market segment. All elements of the value chain (*refer to the Organizational Process Definition process area*) help create product differentiation.

Differentiation is the value proposition that creates market demand. Without differentiation, the product is a just another commodity.

Product differentiation is achieved by successfully integrating all business development functions, such as application engineering, proposal preparation, pricing, terms and conditions, legal issues, marketing communications, and competitive analysis. The integration of these functions can be accomplished through progressive steps (versus "at the last minute") before a formal offer, in response to an RFP, is submitted. In CMMI and in the business development interpretation, product integration is typically more than just a one-time assembly at the conclusion of the design.

Product Integration addresses the integration of product components into more complex product components or into a complete product. As stated, the interpretation for business development is the integration of the business development functions into a comprehensive, complete marketing campaign. However, the business development organization does have a role, focused externally, in defining, verifying, and validating the technical product or service of the enterprise. In this process area, SG 3 is interpreted two ways: (1) externally focused (as just described) and (2) for internal business development integration.

The formal offer (proposal) to the customer should include an executive summary of the offer and its benefits. The proposal's technical description should clearly describe the offer, its features, and benefits. The executive summary mirrors an integration of the business development elements. It should be written clearly and in a manner that allows it to be evaluated easily. The SGs and SPs for the interpretation of the Product Integration process area are presented in Table 23:

Table 23: Interpretation of the Product Integration Process Area

Product Integration	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Preparation for product integration is conducted.	**The tactics for determining and integrating the business development elements are established.**
	It should build on plans created in the Project Planning and Integrated Project Management process areas

SP 1.1 Determine the product component integration sequence.	Determine how and when all functional input for business development is integrated into the campaign and proposal.
SP 1.2 Establish and maintain the environment needed to support the integration of the product components.	Establish and maintain the internal and external functions needed to support the integration of the business development campaign.
SP 1.3 Establish and maintain procedures and criteria for integration of the product components.	Establish and maintain procedures and criteria for integration of the business development functions. *The criteria includes consistency and completeness.*
SG 2 The product component interfaces, both internal and external, are compatible.	*This goal is integrated with the market segmentation-specific goals in the Requirements Development process area.*
SP 2.1 Review interface descriptions for coverage and completeness.	Identify the target customers for the integrated and differentiated product and characterize their interfaces. Review customer interface descriptions for adequate coverage and completeness.
SP 2.2 Manage internal and external interface definitions, designs, and changes for products and product components.	Manage internal and external interface definitions, designs, and changes for products and product components that can provide and/or maintain and enhance product differentiation.
SG 3 Verified product components are assembled and integrated, verified, and validated product is delivered.	Review the product as it proceeds through integration to better understand its features and attributes that may serve to better differentiate it in the marketplace, and verify and validate business development functions, and integrate them into the marketing campaign.
SP 3.1. Confirm, prior to assembly, that each product component required to assemble the product has been properly identified, functions according to its description, and that the product component interfaces comply with the interface descriptions.	Confirm, prior to integration and use within the marketing campaign, that each business development function has been properly addressed and that there is data germane to the campaign strategy, tactics, and objectives.
SP 3.2 Assemble product components according to the product integration sequence and available procedures.	Utilize input from business development function according to the campaign timeline. *Input is often required and utilized iteratively and may be needed throughout the campaign.*

SP 3.3 Evaluate assembled product components for interface compatibility.	Evaluate the impact on the marketing campaign as business development information is integrated and as the product is integrated.
	For example, midway through the campaign, it may be determined that the eventual product development costs are higher than expected and that the resultant price may be non-competitive. Changes to the proposed product design and proposal may need to be investigated.
SP 3.4 Package the assembled product or product components and deliver it to the appropriate customer.	Package the integrated and proposed offer, and deliver it to the customer.
	SG 4 The value proposition and product positioning are defined.
	SP 4.1 Define the positioning, packaging, and advertising for the products.
	SP 4.2 Define the return on investment (ROI) for the customer's use of the product.
	SP 4.3 Define the elevator speech for the enterprise and/or product.

4.4.5 Verification

In the CMMI framework, the purpose of Verification (VER) is to ensure that selected products meet specified requirements. The interpretation of this process area for business development is to ensure business development work products meet specified objectives and criteria. A key work product is the customer proposal. It should be verified that it meets customer-specified needs by conducting a readiness, Red Team, or similar review.

The business development campaign should include verification milestones throughout the process. For example, does the proposal meet the buyer's specification? What are the risks in the proposal? Do marketing collateral and advertising meet the defined goals and objectives of the campaign?

It is important to verify that the business development products meet the external customer's needs. Verification increases the likelihood that offered products and services will be accepted by the customer, but it does not guarantee success. Verification is necessary but not sufficient.

If a specific offer has been prepared in response to an RFP (e.g., a jet fighter or a nuclear power plant), this process area verifies that the offer is responsive to the specification and verifies that it meets the intended or specified need defined in the specification. If management decisions are made (after a risk evaluation) to include non-responsive positions, the rationale should be documented.

Peer reviews, such as Red Team reviews, provide verification that the business development products address the customer specification. The SGs and SPs for the interpretation of the Verification process area are presented in Table 24:

Table 24: Interpretation of the Verification Process Area

Verification	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Preparation for verification is conducted.	**NFI**
SP 1.1 Select the work products to be verified and the verification methods that will be used for each.	SP 1.1 Select the business development work products to be verified and the verification method that will be used for each. *Work products may include items such as the written proposal, the pricing and costs buildup, and the relationship plan.*
SP 1.2 Establish and maintain the environment needed to support verification.	NFI
SP 1.3 Establish and maintain verification procedures and criteria for the selected work products.	*Verification criteria should be developed and defined to ensure that the work products (e.g., proposals and brochures) are correctly developed and consistent with their requirements.*
SG 2 Peer reviews are performed on selected work products.	**Peer reviews, such as a Red Team review, are conducted on the proposal.** *A Red Team review can be a form of a peer review. Such a peer review should have independent membership from all levels of the enterprise.*
SP 2.1 Prepare for peer reviews of selected work products.	Prepare for peer reviews (e.g. Red Team reviews) of selected proposals and business development strategies.
SP 2.2 Conduct peer reviews on selected work products and identify issues resulting from the peer review.	Conduct peer reviews (e.g. Red Team reviews) on selected proposal and strategies, and identify and resolve issues resulting from the reviews.
SP 2.3 Analyze data about preparation, conduct, and results of the peer reviews.	NFI
SG 3 Selected work products are verified against their specified requirements.	*This can be performed by independent reviews, third party collaborations, or peer reviews.*

SP 3.1 Perform verification on the selected work products.	NFI
SP 3.2-2 Analyze the results of all verification activities and identify corrective action.	NFI

4.4.6   Validation

In the CMMI framework, the purpose of Validation (VAL) is to demonstrate that a product fulfills its intended use when placed in its intended environment. The interpretation of this process area for business development is to validate and to demonstrate that a campaign product or service fulfills its intended use in support of the business development campaign objectives. The proposal is a key product of the marketing effort. Prospective customers base their decisions largely on the organization's proposal. Because knowing how to develop a good proposal is critical core competency for business development, it is important to evaluate the readiness of the offer before it is submitted to the customer. The Verification process area uses Red Team reviews. Red Team reviews are often conducted on proposal offers to simulate how the customer will perceive and evaluate the offer (and to evaluate risks associated with the offer). These Red Team reviews are also a way to validate campaign products. These reviews should be performed by and include personnel who were not part of the proposal process.

In a broader context, validation should address the following key questions:

- What is the size of the market? (How it is measured is an important metric.)

- Is the market growing or contracting?

- What influences this movement?

- What are the market segments? (This question relates to the market segmentation.)

- Can the product be introduced into these segments?

- What are the barriers to entry?

- Does the product value proposition address customer needs (and how are these items going to be validated)?

The SGs and SPs for the interpretation of the Validation process area are presented in Table 25:

Table 25: Interpretation of the Validation Process Area

Validation	
CMMI Goal/Practice	**Interpretation for Business Development**
SG 1 Preparation for validation is conducted.	*The products offered and markets in which to compete are chosen using a defendable analysis or rationale. Valid market-related input and feedback is obtained for judging the product's potential commercialization and sales success.*
SP 1.1 Select products and product components to be validated and the validation methods that will be used for each.	NFI
SP 1.2 Establish and maintain the environment needed to support validation.	NFI
SP 1.3 Establish and maintain procedures and criteria for validation.	Establish validation procedures and criteria applicable to the specific market opportunity being pursued.
SG 2 The product or product components are validated to ensure that they are suitable for use in their intended operating environment.	**The product or service is validated.**
SP 2.1 Perform validation on the selected products and product categories.	*Validation could be performed by test marketing, focus groups, or prospective customer management reviews.*
SP 2.2 Analyze the results of the validation activities and identify issues.	NFI

4.4.7   Relationship Management

The purpose of Relationship Management is to establish and maintain excellent customer relations. It is often noted that it is cheaper to keep a customer than to develop and obtain a new one. Successful businesses know their customers and do what it takes to satisfy them.

Successful relationship management includes understanding customer needs, obtaining continuous feedback, communicating constantly, and involving the customer in decisions and plans. Customer satisfaction is measured, and the results create actions. The role of the relationship manager is to be the voice of the customer in his or her organization. The relationship manager must empathize with customers and ensure that his or her organization understands the consequences of its actions—either positive or negative—on the customer.

The relationship manager must put the customer first and attempt to make the customer more successful. Relationship management results in delivering more than promised. An important function of the relationship manager is to manage customer expectations. "Deliver more than promised" and "manage customer expectations" are often neglected concepts.

Sales channels and distribution functions are included in this process area for business development organizations. These are valuable business development process assets. These assets not only include software and documentation artifacts but also include human capital.

An organization must determine how to implement the sales channel within the marketplace. Making this determination is an important and necessary function within business development. The placement of this function within a given process area could be debated; however, in this technical note, it is placed within Relationship Management. The sales channels must be defined and institutionalized. For defense contractors, the sales focal point is usually organized by business development managers that ultimately report to the vice president of business development. For completeness, other sales organization alternatives are included in this technical note. Examples of sales channels include a direct sales force, distributors, partners, and value-added resellers. The sales process must be fully defined, including the process and formal interfaces between the business development organization and the customer. The sales channels and sales processes that are used influence sales and marketing costs. For example, the most costly sales organization is normally a direct sales organization; however, such a sales organization may be necessary for organizations, such as defense contractors, that market large complex products.

In addition to managing relationships with specific customers, relationship management with key external stakeholders (e.g., partners) is necessary. The SGs and SPs for the new Relationship Management process area are presented in Table 26:

Table 26:   Details of the New Relationship Management Process Area

Relationship Management	
CMMI Goal/Practice	**Interpretation for Business Development**
	SG 1 Appropriate sales channels are defined.
	SP 1.1 Evaluate sales channel alternatives. *The appropriate sales channels should be evaluated in the context of the business sector. Sales channels used in the defense business are different than those in the consumer retail business.*
	SP 1.2 Establish the sales organization. *Sales organizations can be functionally aligned by customer, by product line, or as a hybrid.*
	SG 2 Customer and marketplace needs are understood.

	SP 2.1 Obtain feedback on current products and future needs.
	SP 2.2 Communicate needs and opportunities to the enterprise.
	SP 2.3 Monitor actions that address customer needs.
	SG 3 Relationships with key external stakeholders are managed. *The organization designates a person responsible for managing relationships with key, specific customers and other key stakeholders. The relationship manager may be a project manager, service manager, program manager, or product manager.*
	SP 3.1 Manage customer and partner relationships. *This position acts as the formal management of interfaces among the partners.*
	SG 4 Identification and coordination of the resolution of issues is conducted.
	SP 4.1 Communicate the issues and resolution plan.
	SP 4.2 Monitor corrective actions.
	SP 4.3 Establish honesty, integrity, and authenticity.
	SP 4.4 Hold regular project meetings with the customer.
	SG 5 Customer satisfaction is monitored.
	SP 5.1 Establish customer satisfaction objectives.
	SP 5.2 Establish a customer satisfaction program.

4.4.8 Competitive Analysis

The purpose of Competitive Analysis is to understand the competition, including their products, services, strategies, and customer perceptions.

Competitive analysis is an important input into new product development, branding, marketing planning, market segmentation, and competitive offerings. (Of course, all competitive information should be obtained by ethical and legal means.) The analysis of competitive information should result in actionable data from which a more competitive product results. The SGs and SPs for the new Competitive Analysis process area are presented in Table 27:

Table 27:   Details of the New Competitive Analysis Process Area

Competitive Analysis	
CMMI Goal/Practice	**Interpretation for Business Development**
	SG 1 A competitive analysis program is established.
	SP 1.1 Define the competitive analysis program.
	SP 1.2 Obtain competitive information.
	SP 1.3 Perform actionable analysis. *Performing an analysis that results in data that is usable for decision making and specific actions that can be used in the marketplace to improve one's competitive position is "actionable analysis."*
	SG 2 Competitive data are used in marketing proposals, programs, and strategies.
	SP 2.1 Consolidate competitive information.
	SP 2.2 Make data available to business development functions.

4.4.9   Pricing

Pricing is a new process area defined in this technical note specifically for the business development and marketing function. The purpose of Pricing is to define a marketplace price that is both competitive for the product or service and profitable for the enterprise.

Pricing a product or service is non-trivial; it involves balancing between losing a sale and winning a sale that turns out to be unprofitable. When balancing the pricing of a product or service, the competitor's price should also be considered.

Pricing can be based on a number of strategic alternative methods such as cost-plus pricing or time and material pricing. It can be derived from similar prices of competing products in the market. It can be based on the value to the customer (e.g., consider total cost of ownership). The price can be firm, fixed, or subject to escalation provisions. This process area establishes the pricing approach by understanding costs, considering alternative pricing methods, and determining the best price.

Premium pricing is influenced by customers perceiving better value. Value is obtained by superior branding and promotion (*refer to the Branding and Promotion process area*), product differentiation (*refer to the description of product differentiation within the Product Integration process area*), and better quality. In its simplest form, Value=Quality/Price. Companies that can increase prices or charge a premium price have well-known brands (e.g., IBM). The perception of quality must be high to equate to a high value. Organizations that are best at matching customer expectations to the value they can create effectively have pricing power. For example, Starbucks has pricing power because of its product quality

coupled with brand image. Its image is one of lifestyle, not just one dominated by coffee. If the product is priced on the basis of a perceived customer value, this value must be demonstrated and acknowledged. The Integrated Project Management process area addresses the integration of all business development activities to generate perceived customer value. The SGs and SPs for the new Pricing process area are presented in Table 28:

Table 28: Details of the New Pricing Process Area

Pricing	
CMMI Goal/Practice	**Interpretation for Business Development**
	SG 1 The costs of promoting, marketing, developing, designing, and delivering the product or service are understood.
	SP 1.1 Maintain a history of costs for similar products or services previously delivered.
	SP 1.2 Maintain a current estimate of the costs to be invested and the costs to date for each campaign.
	SP 1.3 Estimate the cost of each new proposed product or service.
	SG 2 A pricing strategy is established. *The price offered to the prospective customer and set in the marketplace will be determined using a disciplined approach.*
	SP 2.1 Determine the products and services to be sold and their packaging.
	SP 2.2 Consider alternative pricing and methods.
	SP 2.3 Establish the price.
	SG 3 Payment provisions are established.
	SP 3.1 Establish a payment strategy.
	SP 3.2 Establish invoice provisions and payment terms.

4.4.10 Branding and Promotion

The purpose of Branding and Promotion is to establish a favorable marketplace image of the organization and its products.

Branding is a strategic imperative. A brand should create lasting value and forge competitive advantages. Brands should create and contribute product differentiation and market segmentation. Sam Hill, Chris Lederer, and Kevin Lane Keller, in their book *The Infinite Asset*, promulgate the thesis of managing brands to build value [Hill 01]. They argue that an

enterprise's brands should be integrated, and together define a positive image in the minds of the buyer. Proper branding and promotion should distinguish a company from its competition. Business development organizations typically include a group responsible for managing public relations and marketing communications.

A model that is used to adopt new technology (or to sell new technology) is the Patterson-Conner change adoption model [Conner 82]. This model defines six progressive steps an enterprise goes through to adopt new technology:
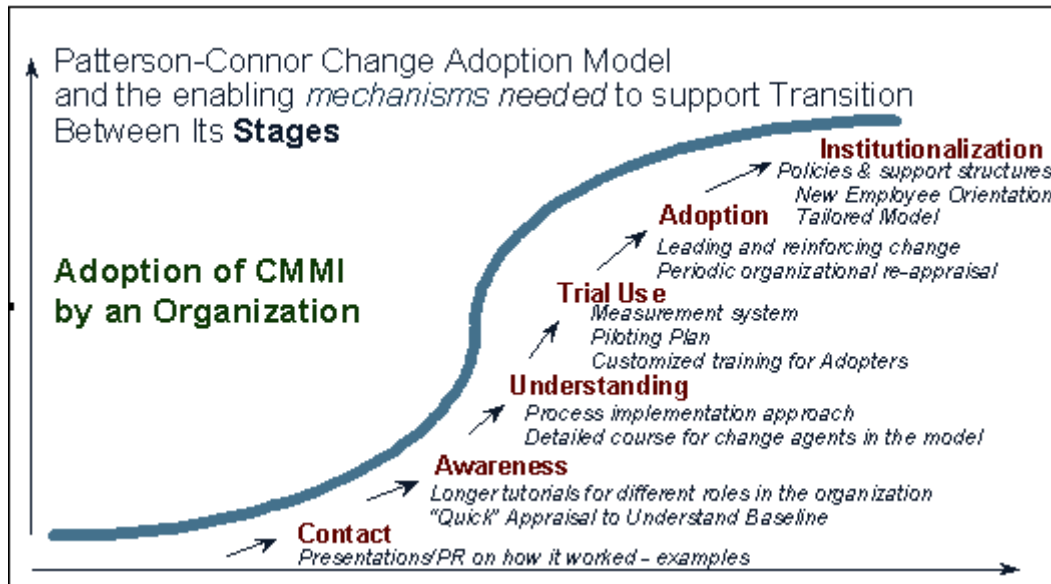

Figure 2: Patterson-Conner Change Adoption Model

Branding and Promotion can aid in and influence the first three steps.

The strategic driving force of the enterprise must be understood and articulated. For example, is the enterprise driven by its products, technology, manner of distribution, marketing expertise, or production superiority? While all elements may be present, the business development organization should understand the strategic drivers of the enterprise and exploit its key strategic driver or theme. An understanding of the enterprise's strategic intent is important when considering decisions about its future products and markets [Robert 98]. (Refer to SG 1.) All business development should have a common understanding of the strategic driver. The SGs and SPs for the new Branding and Promotion process area are presented in Table 29:

Table 29: Details of the New Branding and Promotion Process Area

Branding and Promotion	
CMMI Goal/Practice	**Interpretation for Business Development**
	SG 1 The strategic theme of the enterprise is defined.
	Define the primary strategic theme from alternatives such as technology driven, productions driven, and marketing driven.
	SP 1.1 Consider alternative strategic drivers.
	SP 1.2 Select and define the strategic drivers.
	SP 1.3 Align business development activities with the selected strategic drivers.
	SG 2 A brand identity for the enterprise and for flagship products and services is established.
	SP 2.1 Develop a corporate message that identifies and properly brands the enterprise.
	Customers have choices in the marketplace. A corporate message is intended to better position the enterprise with its prospective customers.
	SP 2.2 Establish a differentiated product positioning statement.
	A product positioning statement identifies the key selling attribute and brands the product in the marketplace. It should provide differentiation from competing products.
	SP 2.3 Develop marketing collateral (e.g., brochures, newsletters, advertising).
	Marketing collateral can be used to create brand awareness, maintain brand loyalty, or describe product features, functions, and benefits.
	SP 2.4 Define a tactical program for the use of collateral.
	Prior to designing marketing collateral, define the purpose and intended audience.
	SG 3 Product brands are combined and interrelated to be part of a brand portfolio.
	SP 3.1 Ensure that collateral material establishes a consistent image.
	SP 3.2 Determine the effectiveness of brand campaigns and marketing material.
	SP 3.3 Ensure that the public relations strategy is consistent with brand identification.

5 Example

Examples of business development organizations that can implement CMMI as interpreted for business development exist in countless high-technology organizations. Consider the case of an organization that markets worldwide commercial nuclear power plants to government organizations and electric utilities. A commercial nuclear power plant is a complex technical product involving integrated hardware and software systems.

Imagine that this organization receives a customer bid specification that defines product requirements, and it must develop a comprehensive proposal and price in the face of global competition from some of the world's largest capitalized companies. (Considerable business development strategy and tactical actions should have occurred prior to receipt of the RFP.) This business development organization could use CMMI as interpreted for business development for the following process areas:

Project Planning: The organization would plan the business development campaign and the response to the bid specification by performing the following actions:

- Establish customer relationships
- Define how requirements will be understood
- Determine how the organization's response will be developed
- Understand the characteristics of the marketplace environment
- Create the tasks, resources, and schedule for the proposal preparation and other strategies
- Generate a list of the tactics and activities to be successful

Project Monitoring and Control: Usually the bidding organization would have months to prepare the technical offering. The pre-bid process would occur years before the receipt of the RFP. The entire sales process from identification of the customer need, requirements, RFP, proposal evaluation, and competitive action must all be managed. This proposal lifecycle could last for years. The outcome could determine the financial health and future of the bidders. This process area would be used to monitor the campaign and the preparation of the proposal.

Pricing: Certainly one of the most important evaluation factors is the price of the offering. In the case of a nuclear power plant, the price would be in the hundreds of millions of dollars. The process to prepare and to understand the price assumptions is critical.

Branding and Promotion: In any evaluation and buying decision, soft-dollar factors often enter into the decision. The buyer's perception of product benefits, value proposition, and intangibles is influenced by the organization's branding and promotion programs.

Organizational Training: Marketing a highly complex and sophisticated product requires that the sales force, business development engineers, and business development management understand the behavior of the buying community. While it may lay a foundation, these specific skills are not taught in a college course of Marketing 101. Specific training should be implemented.

Requirements Development: A product as complex as a nuclear power plant will have many features offered by various suppliers. The supplier that understands the customer's needs best is in a competitively favorable position.

Competitive Analysis: Evaluating the competitors' products can provide information regarding best industry practices and features. Knowing the competitors' product features allows the organization to develop new product changes and to position them in the marketplace to create a valuable asset.

Relationship Management: No organization can be successful at selling a nuclear power plant without excellent customer relationships. The buyer is dependent on the supplier for the entire product lifecycle (possibly 50 years). The relationship must result in integrity and customer trust.

6 Benefits to Technical Business Development Organizations

The benefits of applying interpreted CMMI best practices to a business development organization can include increased revenue, increased market share, increased productivity, and better profitability. Both large and small organizations can benefit from disciplined marketing practices.

An enterprise can align its use of CMMI best practices for product development processes with the use of interpreted CMMI practices for business development processes. This alignment further strengthens the abilities of the enterprise as it competes within a global market. As Brian Gallagher noted in his technical note *Interpreting Capability Maturity Model Integration (CMMI) for Operational Organizations,* a common framework can exist for improving processes, identifying risks, managing issues, making decisions, and building integrated teams [Gallagher 02].

An enterprise and business development organization could apply selected CMMI process areas to business development functions that fit its needs for improvement. It may not be necessary to apply all process areas just because they exist.

7 Next Steps

This technical note presents an initial view and structure for interpreting the use of CMMI in a business development organization. Further collaborations, research, and development could be applied to refine the interpretation of the process areas and their specific goals and specific practices. Material from further industry input, research, and development would result in more detailed guidance for business development best practices.

Process artifacts such as pricing models, proposal templates, terms and conditions, and risk management can be developed and placed into a process asset library (PAL) for organizational reuse.

This technical note could also be used to initiate a business development process improvement program. It lays the foundation for prioritizing the areas for improvement and establishing a starting point.

The architecture of CMMI best practices, as interpreted for business development in this technical note, is consistent with the continuous representation. No attempt has been made to recast this material for a staged representation nor to provide an appraisal methodology. Further development of the new process areas is needed prior to defining a hierarchical, staged framework that would result in maturity level ratings. When the hierarchical structure is in place, the guidance for using an appraisal methodology, such as SCAMPI[SM] (Standard CMMI Appraisal Methodology for Process Improvement), could be considered. Another future effort that may be considered is further development of criteria for pursuing capability level achievement using the continuous representation.

Once this interpretation of CMMI best practices is well used within a business development organization, the following additional areas should be given more in-depth consideration:

- managing product launches
- marketing multi-national products or services
- quantifying the benefits associated with implementation of the process areas

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[SM] SCAMPI is a service mark of Carnegie Mellon University.

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13. ABSTRACT (MAXIMUM 200 WORDS)

Just as use of a disciplined process has been shown to produce higher quality and more predictable software-intensive systems, use of a disciplined business development and marketing process can result in improved success for the business enterprise. Overall business performance and marketing of technology and software-intensive systems can be improved by applying the concepts defined in Capability Maturity Model® Integration (CMMI®) best practices.

This interpretation of CMMI best practices is for business development activities applicable to contractors doing business within the government (Department of Defense) and industrial business sectors. Using CMMI for business development and product development in the same organization addresses process improvement from a larger business perspective, creating the potential for increased efficiency, improved quality, and better customer satisfaction, and improving the organization's ability to achieve a profitable market share. Many organizations have achieved proven benefits from CMMI-based process improvement programs. This success can be extended beyond product and service engineering to business development organizations by interpreting CMMI best practices for the business development and marketing environments.

This technical note uses the continuous representation of a CMMI model and provides interpretation of CMMI process areas in each of the model's four categories: Project Management, Support, Process Management, and Engineering. Because many best practices for business development activities are not included in CMMI models, four new process areas were added to cover these activities.

This technical note provides an initial construct for business development. Further discussions within the business development and CMMI communities can result in improved refinements.

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