Rate Your Administrative Processes

Peter M. Lenhardt

EXECUTIVE SUMMARY

- The *process maturity model* presented in this article helps organizations evaluate their management and support processes.
- The model examines certain *maturity criteria*—attributes inherent in organizational processes that help organizations change how they do business.
- A good process capability enables an organization to change effectively. This capability is exhibited through mature organizational processes, which allow an organization not only to survive but to thrive in an environment of constant change.
- Questions that this article helps answer include the following: How do you know if the management and support work processes of your organization are good? Do you have high confidence that your organization is flexible and can adapt to changing circumstances? Are you convinced that the work done by your internal work groups is effective?

Consider the following true story: While determining data collection requirements for a new enterprise software system, executives at a municipal electric utility debated the merits of a particularly dubious (though long-entrenched) practice. The argument was whether or not to continue the long-held, "comfortable" practice of requiring most of the work force to keep detailed time reports, thus maintaining financial control and reporting accuracy (or so the argument went).

Maintaining the existing practice would—at least in the short term—be the easier option. The existing management reporting processes already required output from an internal labor reporting system. Management had developed a familiarity with the "labor-based" information they were receiving. Administrators and accountants, who were not big fans of the often messy process of

Peter M. Lenhardt *is a principal of Lenhardt & Colton, LLC, in Minneapolis, Minnesota.* *The author wishes to thank Douglas Noga, Manager of Accounting at Rochester Public Utilities, and Stephen D. Colton, a principal of Lenhardt & Colton, LLC, who provided input about some of the maturity-level descriptions.*

CCC 1098-9382/99/01029-16

generating reports based on output from the labor reporting system nonetheless felt that they had a clear understanding of the expectations placed on them. So this familiarity with the "known way of doing things" would probably be the easier course. In any case, it felt "safer." Everybody would just keep busy doing the things they'd always done. . . .

Yet, from a purely conceptual viewpoint, it seemed clear that the better decision would be to eliminate labor-reporting requirements. The very process of collecting, recording, and reporting labor transactions was inherently error-prone. In fact, the labor reporting process was fraught with "guestimates" and provided virtually no tangible benefits, yet it consumed an inordinate amount of internal resources. To eliminate the requirement, however, would cause a fundamental redefinition of traditional roles and responsibilities throughout the organization.

Anyone who has experienced wholesale change in an organization will recognize the difficult choice faced by the company described. It is hard to "change the way we do business." Yet some organizations seem to have an ability to change effectively. Indeed, there is a "process" capability that certain organizations possess. It is exhibited through a higher maturity of organizational processes that enables an organization to not only manage but to thrive in an environment of constant change. As Shakespeare's Polonius observed of Hamlet's bizarre behavior, "Though this be madness, yet there is method in't."

This article examines the "methods" inherent in organizational processes that enable some organizations to do seemingly "crazy" things—such as eliminating processes that have always been in place (labor reporting, for example)—to dramatically improve their overall effectiveness.

Information-Based Organizations

Peter Drucker presciently noted that an information-based organization "can be built without advanced data-processing technology" (Drucker, 1990, p. 208). I believe he was warning us. "As advanced technology becomes more and more prevalent," Drucker stated, "organizations have to engage in analysis and diagnosis—that is, in information. Otherwise, they will be swamped by the data they generate."

Drowning in Data

How many organizations have fallen into this very trap—drowning in data, yet no relevant information? To all decision makers, I suggest the following: Before you commit millions of dollars—and months (or possibly years) of anguish—installing the latest and greatest "information systems," reflect for a moment on Drucker's definition: "Information is data endowed with relevance and purpose" (Drucker, 1990, p. 209). *Don't overlook the part about relevance and purpose when you design and implement your information requirements.*

THE DILEMMA

Many organizations face dilemmas such as the one described previously of having to confront the "tried and true" work routines and replace them with something. That organizations have to confront change to survive and flourish under the pressure of global competition is a given. No longer is downsizing considered a cure for being noncompetitive in the market. Rather, "downsizing has turned out to be something that surgeons for centuries have warned against: amputation before diagnosis. The result is always a casualty." (Drucker, 1995, p. 54)

Organizations have to ensure that they can rationally examine possible opportunities to change their (often-hallowed) work processes. They must move beyond reactionary, often destructive, actions such as indiscriminate downsizing. Indeed, the entire organization must develop a new competency—a "process capability" that the organization makes part of all its essential business processes.

Peter Drucker refers to an "information-based organization," which is an organization that transforms its decision processes, its management structure, and the way its work gets done (see sidebar "Information-Based Organizations"). An information-based organi-

zation requires *mature processes* to exploit opportunities effectively—that is, every business process should have a built-in ability to identify, assess, implement, measure, and reinforce productive process change, and to do so *continuously*.

DIFFERENT KINDS OF PROCESSES

The *American Heritage Dictionary* defines a process as "a series of actions, changes, or functions bringing about a result." (American Heritage Dictionary, Third Edition, 1992.) *Every* organizational endeavor consists of processes. A "result" or outcome (whether it is planned or unplanned; ad hoc or systematic; good or bad) is *always* a consequence of its process.

Said another way, by definition an antecedent precedes its consequence. A process precedes its outcome. Thus, processes (antecedents) must be managed to effect a desired change to an outcome (consequence). Before a process can be managed, however, it must be *identified.*

In 1991, a team of business professionals and the American Productivity & Quality Center (APQC) developed a generic, organizational process-classification scheme. The resulting Process Classification Framework serves as a high-level enterprise model that encourages businesses and other organizations to see their activities from a *cross-industry, process viewpoint* instead of from a narrow *functional* standpoint. The International Benchmarking Clearinghouse (IBC), a service of APQC, has endorsed the scheme as an industry standard. (See Exhibit 1)

Operating Processes

The Process Classification Framework includes 13 business processes that apply to virtually any business. The first seven are *operating processes* (which are often called "primary" processes). An organization's operating processes are those used to get a product or service to customers. These processes include the following:

- Understanding markets and customers;
- Designing products and services; and
- Marketing and selling.

Management and Support Processes

The last six processes in the model are management and support processes—that is, processes that allow a company to perform its operating processes effectively. Management and support processes typically bridge many operational (or primary) processes, including human resource management, information systems management, and finance and accounting.

The sections that follow propose a *process maturity model* that can be used to evaluate an organization's management and support (and other internal service) processes. The model draws heavily from, and is a direct *extension* of, the Capability Maturity Model (CMM) established by the Software Engineering Institute (SEI). (See SEI sidebar)

The Software Engineering Institute (SEI)

The Software Engineering Institute (SEI) is a federally funded research and development center sponsored by the U.S. Department of Defense. The SEI contract was competitively awarded to Carnegie Mellon University in December 1984 and is staffed by technical and administrative professionals from government, industry, and academia.

The Department of Defense established the Software Engineering Institute to advance the practice of software engineering, because high-quality software that is produced on schedule and within budget is critical to U.S. defense systems.

The SEI's mission is to provide leadership in advancing the state of the practice of software engineering to improve the quality of systems that depend on software. The SEI accomplishes this mission by promoting the evolution of software engineering from an ad hoc, labor-intensive activity to a discipline that is well managed and supported by technology.

Exhibit 1. The IBC Process Classification Framework

"APQC would like to see the Process Classification Framework receive wide distribution, discussion, and use. Therefore, APQC grants permission for copying the Framework, as long as acknowledgment is made to the American Productivity & Quality Center. Please notify and inform the Center concerning your use or application. Please direct your comments, suggestions, and questions to: APQC International Benchmarking Clearinghouse, Information Services Department, 123 North Post Oak Lane, 3rd Floor-Houston, Texas 77024, 713-681-4020 (telephone), 713-681-8578 (fax), Internet: apqcinfoapqc.org"

PURPOSE

The *Process Classification Framework* serves as a high-level, generic enterprise model that encourages businesses and other organizations to see their activities from a cross-industry, process viewpoint instead of from a narrow functional viewpoint.

All too often, organizations become bogged down by the fear of making mistakes in "apples to oranges" benchmark comparisons. Convinced that they have unique characteristics and constraints, they have difficulty understanding how to compare their processes meaningfully to other, different organizations.

However, experience shows that the potential of benchmarking to drive dramatic improvement often lies squarely in making "out of the box" comparisons and a search for insights not found within typical intra-industry paradigms.

How can organizations communicate effectively across industry boundaries and overcome the vocabularies that obscure the underlying commonality of their business processes?

The Process Classification Framework supplies a generic view of business processes often found in multiple industries and sectors—manufacturing and service companies, health care, government, education, and others.

Additionally, many organizations now seek to understand their inner workings from a horizontal, process viewpoint, rather than from a vertical, functional viewpoint. How can they, for example, differentiate the sales *process* from the existing sales *department*?

The Process Classification Framework seeks to represent major processes and sub-processes, not functions, through its structure and vocabulary. The Framework does not list all processes found within any specific organization. Likewise, not every process listed in the Framework is present in every organization.

HISTORY

The Process Classification Framework was originally envisioned as a "taxonomy" of business processes during the 1991 design of the American Productivity & Quality Center's International Benchmarking Clearinghouse.

That design process involved more than 80 organizations with a strong interest in advancing the use of benchmarking in the U.S. and around the world. A primary issue was, and continues to be, how to nurture and enable process benchmarking across industry boundaries.

The founding members of the IBC were convinced that a common vocabulary, not tied to any specific industry, was necessary to classify information by process and to help companies transcend the limitations of "insider" terminology.

A small team, representing both industry and the Center, held the initial design meetings in early 1992. The Center published the first version of the Framework later that year.

COLLABORATION

The Center and Arthur Andersen & Co. have collaborated closely to bring the Process Classification Framework to life and enhance it over the past three years. The Center would like to acknowledge the staff of Arthur Andersen for their research and numerous insights during this effort.

Many other IBC member companies from diverse industries have also contributed to the ongoing development of the Framework.

LOOKING FORWARD

Continuing dialogue with Clearinghouse members has shown that the Process Classification Framework can be a useful tool in understanding and mapping business processes. In particular, a number of organizations have used the Framework to classify both internal and external information for the purpose of cross-functional and cross-divisional communication.

The Process Classification Framework is an evolving document. The Center will continue to enhance and improve it on a regular basis. To that end, the Center welcomes your comments, suggestions for improvement, and any insights you gain by applying it within your own organization.

Additionally, other process models exist in various forms; these models might enhance the effectiveness of the Framework. The Center would like to learn from anyone with such information to share.

RIGHTS AND PERMISSIONS

Exhibit 1. (Continued)

1.0 UNDERSTAND MARKETS AND CUSTOMERS
- 1.1 Determine customer needs and wants
  - 1.1.1 Conduct qualitative assessments
    - 1.1.1.1 Conduct customer interviews
    - 1.1.1.2 Conduct focus groups
  - 1.1.2 Conduct quantitative assessments
    - 1.1.2.1 Develop and implement surveys
  - 1.1.3 Predict customer purchasing behavior
- 1.2 Measure customer satisfaction
  - 1.2.1 Monitor satisfaction with products and services
  - 1.2.2 Monitor satisfaction with complaint resolution
  - 1.2.3 Monitor satisfaction with communication
- 1.3 Monitor changes in market or customer expectations
  - 1.3.1 Determine weaknesses of product/service offerings
  - 1.3.2 Identify new innovations that are meeting customers needs
  - 1.3.3 Determine customer reactions to competitive offerings

2.0 DEVELOP VISION AND STRATEGY
- 2.1 Monitor the external environment
  - 2.1.1 Analyze and understand competition
  - 2.1.2 Identify economic trends
  - 2.1.3 Identify political and regulatory issues
  - 2.1.4 Assess new technology innovations
  - 2.1.5 Understand demographics 2.1.6 Identify social and cultural changes
  - 2.1.7 Understand ecological concerns
- 2.2 Define the business concept and organizational strategy
  - 2.2.1 Select relevant markets
  - 2.2.2 Develop long-term vision
  - 2.2.3 Formulate business unit strategy
  - 2.2.4 Develop overall mission statement
- 2.3 Design the organizational structure and relationships between organizational units
- 2.4 Develop and set organizational goals

3.0 DESIGN PRODUCTS AND SERVICES
- 3.1 Develop new product/service concept and plans
  - 3.1.1 Translate customer wants and needs into product and/or service requirements
  - 3.1.2 Plan and deploy quality targets
  - 3.1.3 Plan and deploy cost targets
  - 3.1.4 Develop product life cycle and development timing targets
  - 3.1.5 Develop and integrate leading technology into product/service concept
- 3.2 Design, build, and evaluate prototype products and services
  - 3.2.1 Develop product/service specifications
  - 3.2.2 Conduct concurrent engineering
  - 3.2.3 Implement value engineering
  - 3.2.4 Document design specifications
  - 3.2.5 Develop prototypes
  - 3.2.6 Apply for patents
- 3.3 Refine existing products/services
  - 3.3.1 Develop product/service enhancements
  - 3.3.2 Eliminate quality/reliability problems
  - 3.3.3 Eliminate outdated products/services
- 3.4 Test effectiveness of new or revised products or services
- 3.5 Prepare for production
  - 3.5.1 Develop and test prototype production process
  - 3.5.2 Design and obtain necessary materials and equipment
  - 3.5.3 Install and verify process or methodology
- 3.6 Manage the product/service development process

Exhibit 1. (Continued)

4.0 MARKET AND SELL
- 4.1 Market products or services to relevant customer segments
  - 4.1.1 Develop pricing strategy
  - 4.1.2 Develop advertising strategy
  - 4.1.3 Develop marketing messages to communicate benefits
  - 4.1.4 Estimate advertising resource and capital requirements
  - 4.1.5 Identify specific target customers and their needs
  - 4.1.6 Develop sales forecast
  - 4.1.7 Sell products and services
  - 4.1.8 Negotiate terms
- 4.2 Process customer orders
  - 4.2.1 Accept orders from customers
  - 4.2.2 Enter orders into production and delivery process

5.0 PRODUCE AND DELIVER FOR MANUFACTURING
- 5.1 Plan for and acquire necessary resources
  - 5.1.1 Select and certify suppliers
  - 5.1.2 Purchase capital goods
  - 5.1.3 Purchase materials and supplies
  - 5.1.4 Acquire appropriate technology
- 5.2 Convert resources or inputs into products
  - 5.2.1 Develop and adjust production delivery process (for existing process)
  - 5.2.2 Schedule production
  - 5.2.3 Move materials and resources
  - 5.2.4 Make product
  - 5.2.5 Package product
  - 5.2.6 Warehouse or store product
  - 5.2.7 Stage products for delivery
- 5.3 Deliver products
  - 5.3.1 Arrange product shipment
  - 5.3.2 Deliver products to customers
  - 5.3.3 Install product
  - 5.3.4 Confirm specific service requirements for individual customers
  - 5.3.5 Identify and schedule resources to meet service requirements
  - 5.3.6 Provide the service to specific customers
- 5.4 Manage production and delivery process
  - 5.4.1 Document and monitor order status
  - 5.4.2 Manage inventories
  - 5.4.3 Assure product quality
  - 5.4.4 Schedule and perform maintenance
  - 5.4.5 Monitor environmental constraints

6.0 PRODUCE AND DELIVER FOR SERVICE ORIENTED ORGANIZATION
- 6.1 Plan for and acquire necessary resources
  - 6.1.1 Select and certify suppliers
  - 6.1.2 Purchase materials and supplies
  - 6.1.3 Acquire appropriate technology
- 6.2 Develop human resource skills
  - 6.2.1 Define skill requirements
  - 6.2.2 Identify and implement training
  - 6.2.3 Monitor and manage skill development
- 6.3 Deliver service to the customer
  - 6.3.1 Confirm specific service requirements for individual customer
  - 6.3.2 Identify and schedule resources to meet service requirements
  - 6.3.3 Provide the service to specific customers
- 6.4 Ensure quality of service

Exhibit 1. (Continued)

7.0 INVOICE AND SERVICE CUSTOMERS
- 7.1 Bill the customer
  - 7.1.1 Develop, deliver, and maintain customer billing
  - 7.1.2 Invoice the customer
  - 7.1.3 Respond to billing inquiries
- 7.2 Provide after-sales service
  - 7.2.1 Provide post-sales service
  - 7.2.2 Handle warranties and claims
- 7.3 Respond to customer inquiries
  - 7.3.1 Respond to information requests
  - 7.3.2 Manage customer complaints

8.0 DEVELOP AND MANAGE HUMAN RESOURCES
- 8.1 Create and manage human resource strategies
  - 8.1.1 Identify organizational strategic demands
  - 8.1.2 Determine human resource costs
  - 8.1.3 Define human resource requirements
  - 8.1.4 Define human resource's organizational role
- 8.2 Cascade strategy to work level
  - 8.2.1 Analyze, design, or redesign work
  - 8.2.2 Define and align work outputs and metrics
  - 8.2.3 Define work competencies
- 8.3 Manage deployment of personnel
  - 8.3.1 Plan and forecast workforce requirements
  - 8.3.2 Develop succession and career plans
  - 8.3.3 Recruit, select, and hire employees
  - 8.3.4 Create and deploy teams
  - 8.3.5 Relocate employees
  - 8.3.6 Restructure and rightsize workforce
  - 8.3.7 Manage employee retirement
  - 8.3.8 Provide outplacement support
- 8.4 Develop and train employees
  - 8.4.1 Align employee and organization development needs
  - 8.4.2 Develop and manage training programs
  - 8.4.3 Develop and manage employee orientation programs
  - 8.4.4 Develop functional/process competencies
  - 8.4.5 Develop management/leadership competencies
  - 8.4.6 Develop team competencies
- 8.5 Manage employee performance, reward, and recognition
  - 8.5.1 Define performance measures
  - 8.5.2 Develop performance management approaches and feedback
  - 8.5.3 Manage team performance
  - 8.5.4 Evaluate work for market value and internal equity
  - 8.5.5 Develop and manage base and variable compensation
  - 8.5.6 Manage reward and recognition programs
- 8.6 Ensure employee well-being and satisfaction
  - 8.6.1 Manage employee satisfaction
  - 8.6.2 Develop work and family support systems
  - 8.6.3 Manage and administer employee benefits
  - 8.6.4 Manage workplace health and safety
  - 8.6.5 Manage internal communications
  - 8.6.6 Manage and support workforce diversity
- 8.7 Ensure employee involvement
- 8.8 Manage labor-management relationships
  - 8.8.1 Manage collective bargaining process
  - 8.8.2 Manage labor-management partnerships
- 8.9 Develop Human Resource Information Systems (HRIS)

Exhibit 1. (Continued)

9.0 MANAGE INFORMATION RESOURCES
- 9.1 Plan for information resource management
  - 9.1.1 Derive requirements from business strategies
  - 9.1.2 Define enterprise system architectures
  - 9.1.3 Plan and forecast information technologies and methodologies
  - 9.1.4 Establish enterprise data standards
  - 9.1.5 Establish quality standards and controls
- 9.2 Develop and deploy enterprise support systems
  - 9.2.1 Conduct specific needs assessments
  - 9.2.2 Select information technologies
  - 9.2.3 Define data life cycles
  - 9.2.4 Develop enterprise support systems
  - 9.2.5 Test, evaluate, and deploy enterprise support systems
- 9.3 Implement systems security and controls
  - 9.3.1 Establish systems security strategies and levels
  - 9.3.2 Test, evaluate, and deploy systems security and controls
- 9.4 Manage information storage and retrieval
  - 9.4.1 Establish information repositories (databases)
  - 9.4.2 Acquire and collect information
  - 9.4.3 Store information
  - 9.4.4 Modify and update information
  - 9.4.5 Enable retrieval of information
  - 9.4.6 Delete information
- 9.5 Manage facilities and network operations
  - 9.5.1 Manage centralized facilities
  - 9.5.2 Manage distributed facilities
  - 9.5.3 Manage network operations
- 9.6 Manage information services
  - 9.6.1 Manage libraries and information centers
  - 9.6.2 Manage business records and documents
- 9.7 Facilitate information sharing and communication
  - 9.7.1 Manage external communications systems
  - 9.7.2 Manage internal communications systems
  - 9.7.3 Prepare and distribute publications
- 9.8 Evaluate and audit information quality

10.0 MANAGE FINANCIAL AND PHYSICAL RESOURCES
- 10.1 Manage financial resources
  - 10.1.1 Develop budgets
  - 10.1.2 Manage resource allocation
  - 10.1.3 Design capital structure
  - 10.1.4 Manage cash flow
  - 10.1.5 Manage financial risk
- 10.2 Process finance and accounting transactions
  - 10.2.1 Process accounts payable
  - 10.2.2 Process payroll
  - 10.2.3 Process accounts receivable, credit and collections
  - 10.2.4 Close the books
  - 10.2.5 Process benefits and retiree information
  - 10.2.6 Manage travel and entertainment expenses
- 10.3 Report information
  - 10.3.1 Provide external financial information
  - 10.3.2 Provide internal financial information
- 10.4 Conduct internal audits
- 10.5 Manage the tax function
  - 10.5.1 Ensure tax compliance
  - 10.5.2 Plan tax strategy
  - 10.5.3 Employ effective technology
  - 10.5.4 Manage tax controversies
  - 10.5.5 Communicate tax issues to management
  - 10.5.6 Manage tax administration

Exhibit 1. (Continued)

- 10.6 Manage physical resources
  - 10.6.1 Manage capital planning
  - 10.6.2 Acquire and redeploy fixed assets
  - 10.6.3 Manage facilities
  - 10.6.4 Manage physical risk.

11.0 EXECUTE ENVIRONMENTAL MANAGEMENT PROGRAM

- 11.1 Formulate environmental management strategy
- 11.2 Ensure compliance with regulations
- 11.3 Train and educate employees
- 11.4 Implement pollution prevention program
- 11.5 Manage remediation efforts
- 11.6 Implement emergency response programs
- 11.7 Manage government agency and public relations
- 11.8 Manage acquisition/divestiture environmental issues
- 11.9 Develop and manage environmental information system
- 11.10 Monitor environmental management program

12.0 MANAGE EXTERNAL RELATIONSHIPS

- 12.1 Communicate with shareholders
- 12.2 Manage government relationships
- 12.3 Build lender relationships
- 12.4 Develop public relations program
- 12.5 Interface with board of directors
- 12.6 Develop community relations
- 12.7 Manage legal and ethical issues

13.0 MANAGE IMPROVEMENT AND CHANGE

- 13.1 Measure organizational performance
  - 13.1.1 Create measurement systems
  - 13.1.2 Measure product and service quality
  - 13.1.3 Measure cost of quality
  - 13.1.4 Measure costs
  - 13.1.5 Measure cycle time
  - 13.1.6 Measure productivity
- 13.2 Conduct quality assessments
  - 13.2.1 Conduct quality assessments based on external criteria
  - 13.2.2 Conduct quality assessments based on internal criteria
- 13.3 Benchmark performance
  - 13.3.1 Develop benchmarking capabilities
  - 13.3.2 Conduct process benchmarking
  - 13.3.3 Conduct competitive benchmarking
- 13.4 Improve processes and systems
  - 13.4.1 Create commitment for improvement
  - 13.4.2 Implement continuous process improvement
  - 13.4.3 Reengineer business processes and systems
  - 13.4.4 Manage transition to change
- 13.5 Implement TQM
  - 13.5.1 Create commitment for TQM
  - 13.5.2 Design and implement TQM systems
  - 13.5.3 Manage TQM life cycle

Exhibit 2. A Comparison of Process Maturity Models

	Process Assessment Rankings				
	Worst > Best				
Process Model	Level 1	Level 2	Level 3	Level 4	Level 5
Software Capability Maturity Model	Initial	Repeatable	Defined	Managed	Optimizing
SPR Process Assessment	Poor	Below Average	Average	Above Average	Excellent
Project Management Maturity	Ad hoc	Abbreviated	Organized	Managed	Adaptive

An immature organization is reactionary; its managers typically focus on fighting fires.

PROCESS MATURITY MODELS

Process maturity models are not new. The software industry has been refining process maturity models for several years. A "black magic" aura has long plagued the software industry. As software became increasingly complex, and as software development programs became more critical to various industries (e.g., aerospace and defense, commercial aviation, and international finance), its quality and reliability was decreasing.

The following are three well-known operational process maturity models:

- The SEI's Software Capability Maturity Model;
- Software Productivity Research, Inc.'s, Software Assessment Model; and
- MicroFrame Technologies, Inc.'s, Project Management Maturity Model.

All these models share a similar assessment scale, which identifies five progressive stages of process maturity. (See Exhibit 2)

MATURE VERSUS IMMATURE ORGANIZATIONS

The SEI's Capability Maturity Model (CMM), for example, describes an *immature* organization (Level 1, Initial) as having software processes that are generally improvised by practitioners and their management. An immature organization is reactionary; its managers typically focus on fighting fires. Schedules and budgets are frequently not met because they are based on unrealistic estimates. Processes are unpredictable, quality is unpredictable, and success depends on the abilities of individual performers.

A highly mature (Level 5, Optimizing) organization, on the other hand, has processes that are highly repeatable and predictable. Estimates are realistic, and variations from expectations are known and managed. The entire organization is focused on continuous process improvement. Information about the effectiveness of the process is used to propose, prioritize, and implement process change.

A highly mature organization, on the other hand, has processes that are highly repeatable and predictable.

A MANAGEMENT AND SUPPORT PROCESS MATURITY MODEL

Although the three maturity models analyzed in Exhibit 2 focus on *operational* process maturity, the concepts underlying the models

Exhibit 3. Management and Support Process Maturity Model

Process Maturity Criteria	*Low*		*Process Maturity Levels*		*High*
	1 Ad Hoc	**2 Repeatable**	**3 Standardized**	**4 Predictable**	**5 Optimized**
A. Documented	Process documentation is poor or sparse.	Processes are established and describable, and written documentation exists.	Written process documentation is consistent across the organization	Documented processes and outputs are directly linked to achievement of the organization's mission.	Process documentation is inherent in the process itself.
B. Practiced	Processes are practiced intermittently or inconsistently.	Processes are practiced consistently within specific work group.	Processes are practiced consistently across the organization.	Managed reduction of process variation is consistent across the organization.	Process improvement is consistent across the organization.
C. Coordinated	Processes are not coordinated.	Processes are coordinated within specific work group.	Processes are integrated among work groups; internal outcome requirements are understood and defined.	Process interfaces are identified and managed.	Seamless, managed processes are the norm.
D. Managed	Process management techniques are not employed.	Process flow is integrated within the work group. Training is employed to address process issues within the work group.	Process flow is integrated across the organization. Training activities are planned and executed based upon identified skills and knowledge required for process execution.	Process control parameters are used to quantitatively and systematically reduce process variation across organization.	Process output parameters are actively used to systematically improve and adapt processes. The "zone" of process control moves.
Capability Acquired		**Disciplined processes.**	**Standard and consistent processes.**	**Predictable processes.**	**Continuously improving processes.**

are equally applicable to *management and support* processes. The Management and Support Process Maturity Model shown in Exhibit 3 is a logical extension of those models, as applied generically to management and support processes.

Fundamental Concepts of Process Maturity

Process maturity is the extent to which a specific process is explicitly documented, practiced, coordinated, and managed. Maturity represents a growth toward "full development or maximum excellence." A fundamental premise underlying the maturity framework,

therefore, is that gradations of growth (i.e., maturity levels) exist and are identifiable. As an organization gains maturity, it gains greater process capability. (See Exhibit 3)

Four Criteria for Process Maturity

Exhibit 3 depicts the critical attributes of each process criterion associated with its corresponding level of process maturity. For example, the intersecting cell represented by Level 2 ("Repeatable") and Criterion B ("Practiced") indicates that the key attribute required to achieve the maturity level "Repeatable" for the criterion "Practiced" is "Processes are practiced consistently within a specific work group."

The following paragraphs explain these criteria, which are then related to the five levels of process maturity shown in Exhibit 3.

Criterion A: Documented

The "Documented" criterion addresses the extent to which an organization's processes are documented. The least mature state of documentation maturity is one in which processes typically are ad hoc, perhaps even chaotic. De facto processes may exist, but they have not been systematically designed or officially documented (even if those who do the work can describe the processes).

The least mature state of documentation maturity is one in which processes typically are ad hoc, perhaps even chaotic.

Alternatively, in the most mature state, written documentation is not only consistent throughout the organization, it is an intrinsic element of the process itself.

Criterion B: Practiced

The "Practiced" criterion addresses the consistency of process performance. In the least mature state, processes are practiced in an ad hoc or, at best, intermittent manner.

The processes of a more mature organization are practiced consistently and throughout the organization.

By contrast, the processes of a more mature organization are practiced consistently and throughout the organization (see Level 3). Managed reduction of process variation is consistently practiced (see Level 4), and so is process improvement (see Level 5).

Criterion C: Coordinated

The "Coordinated" criterion addresses the extent of process coordination among work groups and throughout the organization. "Coordination" refers to the harmonious interaction among workers in a common process. In the least mature state, processes are not coordinated to any significant extent.

A mature organization is one whose processes are coordinated both within work groups and across the organization (Level 3). Interfaces are identified and actively managed (Level 4). Processes and functional disciplines do not conflict. Seamless, managed processes are the norm.

Criterion D: Managed

The "managed" criterion addresses the extent to which process management techniques are employed. In the least mature state, process management techniques are not employed to any significant degree.

A mature organization exploits process management techniques in a systematic way to continuously improve and adapt processes.

By contrast, a mature organization exploits process management techniques in a systematic way to continuously improve and adapt processes.

Five Levels of Process Maturity

An organization may progress in stages along an evolutionary path, from *ad hoc* (Level 1) to *optimized* (Level 5). According to the SEI, "maturity implies a potential for growth in *capability* and indicates both the richness of an organization's processes and the consistency with which they are applied throughout the organization." Process capability (again, as defined by SEI), "describes the range of expected results that can be achieved by following" a particular process. The process capability of an organization "provides one means of predicting the most likely outcomes to be expected" from the process (see Exhibit 3).

An example from a finance and accounting department (part of an operating unit in a large, high-tech corporation in the Midwest) is used to illustrate aspects of the different maturity levels, which are italicized below. (Experiences of that finance department were described in a series of articles published in 1995.)

Level 1: Ad Hoc

Level 1 processes are best characterized as *ad hoc*—perhaps even chaotic. Few processes are documented. Processes that are identified are practiced intermittently at best. There is little coordination of process flow among work groups. The success of the process depends on specific individuals, and "heroic" effort is often required. Crisis management is the norm, and process outcomes tend to be unpredictable.

Level 2: Repeatable

The primary objectives at Level 2, the *repeatable* level, are "to instill a process discipline in the environment that ensures that the basic practices needed to stabilize the environment are performed on a regular and repeatable basis." Processes are established and describable; written documentation exists. Processes and activities are practiced and consistent within a specific workgroup. Unlike Level 1, a process that is "Repeatable" does not depend on heroic efforts of single individuals. Rather, process knowledge is in place to ensure fundamental repeatability. Process capability is best described as "disciplined."

Process knowledge is in place to ensure fundamental repeatability. Process capability is best described as "disciplined."

> A finance and accounting department needed first to address [its] overall mission, followed by an identification of essential processes used to achieve [its] desired outcomes. A critical business subprocess for this group was "Close the Books." This team, to exhibit Level 2 maturity, needed to identify the various activities, performed by different functional groups, that were necessary to achieve a minimal definition for the "Close the Books" process. This was required to achieve a process capable of being "repeatable and

systematic." As one former manager of the group used to say, "We've got to make the 'routine' routine."

It is important to understand and establish Level 2 maturity before trying to achieve Level 3. The discipline captured in Level 2 is the foundation for achieving Level 3 and higher.

Level 3: Standardized

Having established an ability to perform a process in a repeatable manner, an organization can focus on transferring its best practices *across the organization*. Although successful practices are executed in a repeatable manner at the "Repeatable" maturity level, they may be performed quite differently by different people or in different groups.

***Having established an ability to perform a process in a repeatable manner, an organization can focus on transferring its best practices* across the organization.**

Some ways of performing these practices will prove more effective than others. Thus, *the primary focus of Level 3 is to insert the practices from Level 2 throughout the organization.* You can think of it as integrating many "pockets" of unique (albeit repeatable) practices into a set of integrated, and organizationally consistent, practices. Everyone in the organization is reading from the same page of the same book. The organizational process language and practices are *defined* and standardized. The term "organization," as it is used here, can be interpreted both globally (i.e., broadly) and locally (e.g., a specific function within a larger organization). The key is to use judgment when applying the model.

Training activities are planned and executed based upon identified skills and knowledge required for process execution. Process capability is best described as "standard and consistent."

Successful execution of "Close the Books" became a repeatable routine. However, the effectiveness of the process needed improvement. Understanding and capitalizing on processes that work best is the heart of the Standardized Level (Level 3). To improve the consistency (and thus the effectiveness), the finance department queried themselves and the internal customers about the requirements of the "Close the Books" process. This resulted in a clear understanding of the criteria of a "quality close." Armed with this knowledge, they began a concerted effort at documenting the process and identifying other functions whose actions affected the closing process. Inputs and outputs of key activities within the "Close the Books" process were identified and coordinated with the respective work groups. The group began training others, thereby ensuring organizational effectiveness of the process. This created a common reference for performing their work. They did not have to try to reinvent the methodology each month.

***Once an organization can execute its standard processes consistently, it can use process data* to systematically eliminate the causes of wide variations in performance.**

Level 4: Predictable

Once an organization can execute its standard processes consistently, it can use process data *to systematically eliminate the causes of wide variations in performance.* The objective of the Predictable Level (Level 4) is to set *quantitative* performance and quality tar-

gets, and to *reduce the variation* in the process to stabilize the organization's capability in achieving these targets.

Measurements are used to establish quantitative foundation for evaluating processes and products.

Measurements are used to establish quantitative foundation for evaluating processes and products. Process productivity goals are measured across the discipline. Data is collected and analyzed. Defect detection is pursued. Process control is achieved by narrowing variation in process performance boundaries. Variations in process performance are understood. Process performance is predictable because the process is measured, and it operates within measurable limits. Process output is of predictable, high quality. Process capability is best described as "predictable."

> Having clarified the expectations, the finance and accounting group determined the leading causes that prevented [it] from achieving [its] defined quality and time goals each time the "Close the Books" process was performed. That is, the question of "What makes our closing process go smoothly one month and have unexpected perturbations the next?" was evaluated. A baseline of "major cost driver occurrences" was created. By identifying, measuring and minimizing those adverse drivers (i.e., defects) of the "Close the Books" process, they dramatically reduced the variation in the process and stabilized their ability to perform consistently within currently defined and acceptable variation. Further, quantitative performance and quality targets were set. A visual measurement program was established, and a complementary reinforcement plan was established to enable meeting the aggressive targets.

Level 5: Optimized

At the Optimizing Level (Level 5), the organization continues on its improvement path with a *focus on continuous process improvement*. Unlike Level 4, which is focused primarily on managing the current process within acceptable variations, the organization begins in Level 5 to identify process innovations that *can continually improve* the process performance and, therefore, favorably affect the organization's competitive posture.

The organization begins in Level 5 to identify process innovations that* can continually improve *the process performance and, therefore, favorably affect the organization's competitive posture.

In addition to identifying and minimizing process variation (Level 4), the organization is "raising the height of the bar" itself. In other words, a new (improved) process is introduced, which will itself be managed and monitored. The organization focuses on continual improvement of any factor that affects the achievement of its business goals. It is continuing to optimize and adapt its work processes.

Quantitative feedback from the process and from piloting innovative ideas and technologies enables continuous process improvement. The entire organization is focused on continuous improvement. Defect prevention activities are *planned*. The organization can identify weaknesses and actively strengthen the process, the goal being to prevent defects from occurring. Best practices are exploited. Process capability is best described as "continuously improving."

> The finance and accounting department story concludes with the organization pursuing continuous process improvement while tran-

sitioning to a self-managed team. To my knowledge, the journey is still in progress.

CONCLUSION

This article identifies five levels of process maturity. Organizational endeavors consist of both operational and support processes to produce the desired outcomes. Outcomes can only be managed by managing the processes that produce them. A level of process maturity must exist to manage processes. Process maturity can be identified and managed.

Progressing through the five levels of process maturity enables an organization to acquire new process capabilities. The journey, however, requires discipline and focus. It takes perseverance and active organizational support. Finally, it requires a workable approach—a benchmark from which progress can be measured. The five levels of administrative and support process maturity explained here should give organizations insight into how to improve their processes—and a benchmark from which they can measure their progress.

REFERENCES

Drucker, P.F. (1990). The New Realities: In Government and Politics. In Economics and Business; In Society and World View, First Perennial Edition. New York: Harper & Row, 207–220.

Drucker, P.F. (1995). "Really. Reinventing Government." The Atlantic Monthly (February), 54.

International Benchmarking Clearinghouse: Process Classification Framework. (Houston, Texas: American Productivity Quality Center, 1995).

Jones, C. (1994). Assessment and Control of Software Risks. New Jersey: Prentice Hall.

Lenhardt, P. "It's the Process!" "It's the Process, Part 2," and "Take a Chance! Establish an Effective Reinforcement Process" in Cost Management Insider's Report, ed. B. Brinker and L. Soloway (New York: Warren, Gorham & Lamont, Feb. 1995, March 1995, and May 1995).

Paulk, M. et al. (1993). "Capability Maturity Model for Software, Version 1.1" (Pittsburgh, Pennsylvania: Carnegie Mellon University, Software Engineering Institute, Working Paper CMU/SEI-93-TR-24, February).

The American Heritage Dictionary of the English Language, Third Edition, 1992.