The Quality Manager Body of Knowledge (Part 1)

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Introduction to Part 1

The purpose of this paper is to provide a relatively brief overview of what today's quality manager is expected to know. Essentially this is the body of knowledge (BOK) which the American Society for Quality (ASQ) uses to develop its examination for Manager of Quality/Organizational Excellence (MOQ/OE) certification. This information should be of interest to anyone who is involved in any way with ensuring the quality of his or her company's goods and services. In fact, since good quality management is becoming more and more simply good management, the BOK should also provide good review of general management concepts and best practices. Also it should be of interest to those who teach quality management and provide a framework for such teaching. Finally it will provide those studying for the MOQ/OE certification examination

a quick way to refresh their memory about the contents of the BOK.

Westcott (2006) is the basic reference for the body of knowledge and will be the basis for this paper[1]. Unless otherwise indicated, all page citations refer to Westcott (2006). To even briefly summarize the BOK (as spelled out in Westcott's voluminous handbook) in any meaningful way requires a lot of pages. Therefore, to keep this paper a reasonable size it was decided to break it into two parts. This is part 1; part 2 will follow in about six months. Part 1 covers the first 12 chapters in Westcott; part 2 will cover chapters 13–19.

The BOK consists of seven major parts: I Leadership, II Strategic Plan Development and Deployment, III Management Elements and Methods, IV Quality Management Tools, V Customer-Focused Organizations, VI Supply Chain Management, and VII Training and Development. Under each part are from one to five chapters which are further divided. Appendix A shows this breakdown in detail. Due to the breath of this BOK it would be impossible to do any more than briefly summarize each chapter. This will be done by first doing a bullet summary of the essential points of the chapter and then another bullet listing of certain other key points felt particularly noteworthy. Both of these lists will be according to my understanding of the subject matter *and not necessarily authoritative*.

This paper (part 1) is organized as follows[2]:

- Introduction to Part 1
- I Leadership (Chapters 1–4 in Westcott)
- II Strategic Plan Development and Deployment (Chapters 5–7 in Westcott)

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1) However, even this handbook by Westcott is considered to be only a guide and those preparing for the certification exam are "urged to seek more information from one or more of the resources lists" (and many are listed).

2) See the Table of Contents and Appendix A for a further breakdown.

- III Management Elements and Methods (Chapters 8–12 in Westcott)
- Summary and Conclusion to Part 1

Part 2[3] will cover the following:

- IV Quality Management Tools (Chapters 13–15 in Westcott)
- V Customer-Focused Organizations (Chapters 16 & 17 in Westcott)
- VI Supply Chain Management (Chapter 18 in Westcott)
- VII Training and Development (Chapter 19 in Westcott)

I Leadership

I-A Organizational Structures and Culture (Chapter 1 in Westcott)

Brief summary of chapter:

I-A-1 Organizational Structures

- Three things determine the design of an organization: complexity, formalization, and centralization.
- Purposes of organizational design include logically dividing up the work and setting up formal lines of authority and responsibility.
- Important considerations when designing an organization include maintaining unity of command and a reasonable span of control.
- Another important consideration is the extent to which decision-making authority will be centralized/decentralized.
- There are many possible ways to group an organization's work functions: functionally, geographically, by matrix, etc.
- When developing the organization's structure several things should be taken into consideration; e.g., the organization's strategy, its size, the role of technology, etc.
- In most organizations there are three levels of management—top, middle,

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3)   Available in about six months from the date of this paper.

and first-level supervision, each with its distinctive role.

I-A-2 Organizational Culture

- An organization is the combination of two main systems: technical and social. The technical system determines how the product/service is produced/delivered and the social (cultural) how people interrelate and make decisions.

- An organization's culture is based on the "values, norms, and assumptions shared by the members" (p. 14).

- An organization's culture should be proactively shaped by management and focused on the customer.

- Changing an existing culture will take time, patience, and persistence.

Some other key points for further consideration (Organizational Structures and Culture):

- When dividing up labor in an organization, consider how to make a job more interesting by expanding its scope and/or its amount of responsibility.

- Push the decision-making authority to the lowest level possible commensurate with the employees' abilities.

- Make the maximum feasible use of technology to allow a broader span of control and a flatter, more customer-responsive organization.

I-B Leadership Challenges (Chapter 2 in Westcott)

Brief summary of chapter:

I-B-1 Roles and Responsibilities of Leaders

- A leader is recognized as such, has followers, and may or may not hold a designated position (as a manager does).

- A good leader is, among other things, a visionary, creative, patient, sensitive to employee and customer issues, and highly self-disciplined.

- A good leader uses a style appropriate to each situation (situational lead-

ership).

I-B-2 Roles and Responsibilities of Managers

- Managers are in charge of the work of the organization and use its resources to accomplish its strategic and operational objectives.
- Managers carry out five functions: planning, organizing, staffing, directing, and controlling.
- Good managers are competent in the follow areas: technical, business, people (e.g., human behavior), human resource (e.g., hiring and training), and environmental (e.g., competition and earth sciences).

I-B-3 Change Management

- Change management means being sure those affected understand the need for the change and come to accept it as a positive thing.
- A change agent can be either someone appointed from within the organization (internal change agent) or someone hired from outside the organization (external change agent).

I-B-4 Motivating, Influencing, Negotiating, Resolving

- There are two types of motivation: extrinsic (due to specific incentives by the organization) and intrinsic (due to satisfaction inherent in the job itself).
- Some important theories of motivation are: Maslow's Hierarchy of Needs, Herzberg's Satisfiers/Dissatisfiers, Equity Theory, Expectancy Theory (Vroom), and Reinforcement Theory (Skinner).
- What motivates one person may not motivate another.
- Negotiation is trying to reach an agreement on common goals and how those goals will be achieved.
- Conflict resolution can range from simply working for a consensus with cooperating parties to intervention by a trained facilitator.

I-B-5 Empowerment

- Empowerment is based on a belief that employees are capable of taking on

more responsibility and authority (with appropriate support such as train-
ing).

- Empowerment requires an organizational structure that places manage-
ment in a support vs. purely directive role vis-à-vis the employee.

Some other key points for further consideration (Leadership Challenges):

- Good leaders inspire others, encourage collaboration, share power, set the
example, and strive for constant self-improvement.
- It is important for an organization to maintain an environment that moti-
vates competent people to stay.
- A manager's first task is to ensure profitability (Drucker).
- To facilitate change it helps to have a relationship with the organization's
informal leaders—those others will listen to.
- It is also important to realize significant cultural change usually takes a
considerable amount of time because it is the intangibles such as beliefs
and values that are being changed.
- Because he/she is often working with shared resources, a project manager
needs good negotiating skills.
- Empowered organizations turn the traditional organizational on its head
with the customer on top of the "pyramid," employees in the middle, and
a supportive management on the bottom.

I-C Teams and Team Processes (Chapter 3 in Westcott)

Brief summary of chapter:

- A team is a group of persons working together towards a common pur-
pose; it could be temporary or ongoing.

I-C-1 Types of Teams

- Types of teams include process improvement teams, self-managed teams,
ad hoc teams (to address a specific problem/situation), work groups (also

known as natural teams), and virtual (on line) teams.

- When selecting team members a useful tool is the KESAA Requisites Analysis[4]. Two other useful tools are the Myers-Briggs Personality Type Indicator and the DiSC[5] model.

I-C-2 Stages of Team Development

- The four stages of team development are: forming, storming, norming, and performing (Tuckman).

I-C-3 Team-Building Techniques

- Team processes fall into two categories: those that help keep the team focused on its goal (task-related) and those that help maintain a harmonious relationship among the members (maintenance-related).

- Some task-related processes are: documenting/reviewing the team's objective, always following the agenda, and using models and techniques appropriate to the task for problem-solving and decision-making.

- Some maintenance-related processes are: establishing norms (e.g., being on time and active participation by every member) and assigning members roles (e.g., a scribe to take minutes of the meeting and a time-keeper).

I-C-4 Team Roles and Responsibilities

- Other important team-related roles are those of the champion/sponsor of the project, the team leader and, when needed, the team facilitator.

- If the team's project is important enough, a steering committee representing top management might be formed to monitor and guide its effort.

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4) KESAA stands for Knowledge, Experience, Skills, Aptitude, and Attitude. See Appendix B for an example of a KESAA Requisites Analysis from Westcott.

5) As defined in the glossary of Westcott DiSC is: A profiling instrument that measures characteristic ways in which a person behaves in a particular environment. Four dimensions measured are dominance, influence, steadiness, and conscientiousness.

- Usually it is important to have a written charter to define the team's scope of work, authority and responsibility, expected deliverables, and reporting requirements.

- Whereas the team leader is concerned primarily with team administration and ensuring accomplish of its objective, the team facilitator is concerned with helping the team to work effectively together as a cohesive unit.

- Some things the facilitator does to help the team are: encourage everyone to participate, resolve conflicts, and provide feedback on how the team is doing.

I-C-5 Team Performance and Evaluation

- Evaluation of team performance should take place at both the team and organizational levels. For example, at the team level criteria can be developed and used at the end of each meeting to evaluate how the team did. At the organizational level such things as meeting the schedule and measurable improvements in quality can be used.

- Successful team accomplishment should be appropriately rewarded.

- A common problem with teams is groupthink—when the team agrees on something without it having been fully discussed and/or one or more members don't really agree (but don't say so).

Some other key points for further consideration (Teams and Team Processes):

- To be sure the team knows what it's suppose to do this question can be asked: "What will you measure to determine whether the objective has been accomplished?" (p. 77)

- A good way to set a team's objectives is to use the S.M.A.R.T. W.A.Y. (p. 98):

| S | Focus on *specific* needs and opportunities. |
| M | Establish a *measurement* for each objective. |

A	Be sure objectives are *achievable* as well as challenging.
R	Set stretch objectives that are also *realistic*.
T	Indicate a *time* frame for each objective.
W	Ensure that every objective is *worth* doing.
A	*Assign* responsibility for each objective.
Y	Ensure that all objectives stated will *yield* desired returns.

- Although perhaps not always required, a team facilitator can often make an important difference in whether the team will be successful or not.
- Some ways to avoid groupthink are brainstorming ideas/alternatives, getting members to state concerns, and being sure each idea/alternative is adequately examined.

I-D American Society for Quality (ASQ) Code of Ethics (Chapter 4 in Westcott)

Brief summary of chapter:

- An important duty of the organization's leadership is to clearly define and set forth to all members what is acceptable behavior.
- The leaders must also demonstrate what is acceptable by their own behavior.
- Employees who abide by the principles of good behavior—especially under difficult conditions—are to be praised; those that don't follow these principles are to be dealt with appropriately.

Some other key points for further consideration (ASQ Code of Ethics):

- Although the many legal controls, such as Sarbanes-Oxley, can serve as helpful guides, principled behavior must occur because the organization's member understand and want to do what is right[6].

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6) Note, too, that these controls often kick in *after* the damage to the organization has been done—not a desirable situation!

- The ASQ Code of Ethics (Appendix C) can serve as a useful guide for developing an organization's own code of conduct.

II Strategic Plan Development and Deployment

II-A Strategic Planning Models (Chapter 5 in Westcott)

Brief summary of chapter:

- Traditional strategic planning (1) identifies those goals the organization wishes to achieve to fulfill its stated mission and vision of the future and (2) establishes tactical objectives and associated action plans that will lead to achievement of those goals.
- A strategic plan typically covers a three to five year span.
- Ideally there is a systematic follow up to ensure the action plans are carried out so the tactical objectives and strategic goals *actually get achieved.*
- However, too often the strategic plan goes unfulfilled due to a lack of commitment for its deployment/execution on the part of top management.
- Hoshin planning is a comprehensive approach to strategic planning that ensures the resulting plan will be properly and timely executed.
- Hoshin planning starts with development of the vision statement and then development of each of the following based on what preceded: guiding principles, a mission statement, strategic goals, multiyear objectives, a means matrix for each objective, and action plans for each means.
- The means matrix is the way the strategy gets deployed throughout the organization by identifying who will be responsible for what vis-à-vis each strategic objective. It also identifies the measures to be used and schedules to be followed.
- The final part of hoshin planning is to review how it going at the end of each year and use this information to update the strategy and associated

objectives, means, and action plans.

- Scenario planning is a way for an organization to challenge its assumptions about the future by thinking about all possible futures including "bad," "good," and "wild card."

- The set of criteria of the Baldrige National Quality Program (BNQP)[7] provide an excellent tool for evaluating an organization's strategic planning process.

- Two popular programs that can significantly contribute to the improvement of an organization's quality and thus attainment of its strategic goals are the ISO 9001 standard[8] and Six Sigma[9].

- Some reasons why strategic planning fails: ambiguous terms (e.g., the meaning of "goal" vs. "objective"), no supporting reward/recognition system, departmental plans not based on the overall strategy, and management not consistently backing the strategic planning and implementation effort.

Some other key points for further consideration (Strategic Planning Models):

- Because the business environment is continuously changing, strategic planning also must be continuous—recognizing that, there should probably also be a schedule for annually carrying out a major review.

- Although difficult, hoshin planning will greatly improve an organization's chances for success since it ensures the strategic plan will be carried out and involve everyone in a coordinated way—usually the biggest

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7) The BNQP annually recognizes those organizations in the U.S. who have applied for the award and met the high standards of its criteria for management and quality excellence.

8) Certification to ISO 9001 signifies to all concerned that that organization has a good quality management system (at least at the time of certification).

9) Six Sigma is an approach to quality that strives to eliminate all defects in an organization's specific products/services.

reason strategic planning fails.

• Fully implementing hoshin planning may well require a major change in the organization's culture and thus usually requires much time and patience to see it through.

II-B Business Environment Analysis (Chapter 6 in Westcott)

Brief summary of chapter:

• A business environment analysis provides a key input to the strategic planning process.

• A business environment analysis looks at how external and internal factors might impact the organization. For example, external factors such as societal and technology changes and internal factors such as an organization's customer base and internal capabilities.

II-B-1 SWOT Analysis

• A SWOT analysis identifies the organization's strengths and weaknesses and the opportunities and threats presented by the current and future marketplace.

II-B-2 Market Forces

• A general examination of the market forces is another source of input for strategic planning. Here such things as economic, societal, and competitive factors affecting the organization's industry and specific markets are assessed.

• When looking at the competitive forces that might affect an organization's strategy, some good questions are: who are the competitors, are they forming alliances, how aggressive are they (constantly coming out with new products/services?), how are they using technology, and what are their weaknesses?

• Benchmarking studies the best practices of a company known for supe-

rior performance so those practices can be adapted by the organization. Such a study often reveals ways to significantly improve an organization's competitive advantage.

II-B-3 Stakeholder Analysis

- A stakeholder analysis systematically looks at how actions and/or interests of the organization's various stakeholders might impact its strategy; for example changes in the strategies of its customers and/or suppliers and vice versa, and the responsibilities an organization has to it community and society as a whole.

II-B-4 Technology

- Another major consideration when planning strategy is whether an organization should adopt a new technology.

II-B-5 Internal Capability Analysis

- An internal capability analysis seeks to fully understand and exploit those key (core) competencies that enable an organization to successfully compete.
- In doing an internal capability analysis an organization looks at such things as current and future availability of labor, facilities, funds, supplies, and leadership/management skills. Input from customers and employees can also provide a significant contribution to the analysis.

II-B-6 Legal and Regulatory Factors

- A legal and regulatory analysis will also provide a valuable and necessary input to the strategic planning process. Indeed in today's world there are a multitude of legal and regulatory matters an organization must contend with and they are often changing!

Some other key points for further consideration (Business Environment Analysis):

- Westcott cites some useful factors by Porter[10] for comparing an organi-

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10)   Michael Porter, famous for his work on competitive strategy.

zation with one of its competitors: "core capabilities, its ability to grow, its quick response capability, its ability to adapt to change, and its staying power" (p. 112).

- When considering the effect of customer behavior on an organization's strategy a significant issue might well be the Internet and how it makes it much easier now to "shop around."

- How an organization reacts to societal issues is becoming more and more important. Some examples are how the organization deals with such things as layoffs, diversity issues, sexual harassment, environmental issues, and cultural issues in other countries[11], and lapses in its own ethics (e.g. insider trading or misleading product information).

- Because of the rapid advance of technology it has the potential to seriously impact an organization's competitive position.

- Introducing a new technology may not always be the best solution to a problem—sometimes just a change in a business process will do the trick.

- To increase an organization's chances for successfully implementing its strategy it must be sure its employees first understand the strategy and second are committed to carrying it out.

II-C Strategic Plan Deployment (Chapter 7 in Westcott)

Brief summary of chapter:

- Strategic plan deployment means transforming the strategic plan into tactical action plans and then carrying out those action plans as close to cost/schedule as possible. This is often called "the hard part" of the strategic planning process and requires "discipline and solid top management support" (p. 125).

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11) For example where common practices might be a variance with the organization's ethics (bribery, human rights, etc.).

II-C-1 Action Plans

- As mentioned under hoshin planning above, the action plans are based on the means matrix and, relative to each strategic objective, collectively provide all the details necessary for its achievement. There may be several action plans for each strategic objective.

- Typically an action plan will include the following information: when each action starts/ends, who is responsible for each action, estimated costs/benefits, assumptions, deliverables, measures of success, and reporting requirements.

II-C-2 Resource Allocation and Deployment

- Before an action plan can be finalized, it is necessary to ensure required resources will be available. This requires the development of a means matrix as already mentioned.

- The means matrix ensures that all parts of the organization affected by any of the action plans are involved in planning the actions necessary and ultimately agree to provide whatever resources are required of them.

II-C-3 Organizational Performance Measurement

- A key element of the strategic planning process is the effective use of measures. These can range from measures at the individual process level, to those related to action plan progress and success, to overall organizational performance.

- Measures should always be "closed-loop," i.e., have a built-in feedback loop for using the measurement data to take appropriate corrective action.

- At the action plan level, one important measure is regular reviews of progress by management.

- At the organizational level the balanced scorecard[12] is a popular method

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12)　The balanced scorecard approach goes beyond purely financial measures of performance; it also measures how well the organization is doing in the areas of customer ↗

for measuring performance.

- When setting up measures it is important to focus on exactly what needs to be measured and how often.

II-C-4 Quality Function in Strategic Deployment

- The quality function (manager) plays a major role in the strategic planning process that includes development of the quality policy, quality management principles, and strategic quality objectives. It also includes auditing quality practices and working to improve the strategic planning process itself.

Some other key points for further consideration (Strategic Plan Deployment):

- The key to achieving an organization's strategy is the systematic initiation and carrying out of the action plans supporting the strategic objectives.

- When trying to make the best allocation of scarce resources to action plan projects, organizations should take advantage of the many project planning software programs now available.

- One common problem is the failure of management to establish good closed-loop processes for detecting and controlling variation. Another way to put this is: failure to manage by fact vs. intuition, emotions, etc.

- Too many metrics to measure organizational, project, or process performance can be almost as bad as none.

- An organization's policies and principles need to be deployed, not just framed and hung in the front lobby.

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satisfaction, improving its internal business processes, and learning and growing.

III Management Elements and Methods

III-A Management Skills and Abilities (Chapter 8 in Westcott)

Brief summary of chapter:

III-A-1 Principles of Management

- Management's role is "to plan, carry out, monitor, and initiate action to maintain the appropriate focus and results, and to ensure viability of the organization in the future" (p. 144).

- As mentioned in section I-A-1, there are three levels of management: top management, middle management, and first-level supervision.

- Generally speaking, top managers set the overall direction for the organization, middle managers transform that strategic direction into operational plans, policies, and procedures, and first-level supervisors manage the work of a particular part of the organization according to those plans, policies, and procedures.

- As mentioned in section I-B-2 there are five things managers do: planning, organizing, staffing, directing, and controlling. The scope of these functions depends on the level of management and ranges from a broad, strategic one at the top level to a relatively narrow one at the supervisor level.

III-A-2 Management Theories, Styles, and Tools

- There are a number of theories related to management:

Theory(ies)	Some Associated Names
Scientific Management	Taylor, the Gilbreths, Gantt
Classical Organizational Theory	Fayol, Weber, Follett
Human Relations Theory	Hawthorne Plant of Western Electric
Behavior Theories	Maslow, Hertzberg, McGregor, Ouchi

Learning Theories	Kolb, Honey & Mumford, Gardner
Behavior Management	Skinner, Daniels
Situational Leadership/Management	Hersey & Blanchard
Systems Thinking	Senge (*The Fifth Discipline*)
Complexity Theory	Okes
Managerial Grid	Blake & Mouton
Seven Habits	Covey

- Some tools managers can use to help them understand human behavior are: DiSC (see footnote 5), the Myers-Briggs Personality Type Indicator, and A-B-C Analysis[13].

- As with management theories, there are a number of different management styles:

Style	Comment
Autocratic	Little concern for people
Participative	A lot of concern for people
Transactional Leadership	Task and responsibilities are clear
Transformational Leadership	High goals/values articulated
Management by Fact	Decisions based on data[14]
Coaching	Helping employees improve
Contingency Approach	Exercising management flexibility

- Good management requires the manager to understand the different theories and styles of management and apply them depending on the individual/situation being dealt with.

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13) A-B-C Analysis uses a form to collect data on an individual or work group that can be analyzed to detect possible dysfunctional behavior.

14) A focus of quality management.

III-A-3 Interdependence of Functional Areas

- In general there are two kinds of business functions: external and internal. The external functions deal with such things as regulatory and environmental issues—the "outside world." Internal functions are those operating within the organization such as finance, human resources, marketing/sales, logistics, engineering, research and development, production, and quality.

- Good management practices dictate always taking a systems view of the organization so the internal functions operate as an integrated and coordinate whole. A good example is the practice of concurrent engineering[15] when developing a new product/service.

III-A-4 Human Resources (HR) Management

- Although the human resources function typically has most of the responsibility for personnel administration, it must work closely with the other functional mangers since they also have a part of that responsibility. For example, managers have an important role to play in the selection, hiring, assimilation and, when necessary, firing of employees.

- One of the most important roles for both human resources and each functional managers/supervisor is the development of each employee. Appendix D from Westcott shows the many factors that are involved in this important task. Note investing in an employee's development is a *mutual* effort by both the manager/supervisor and the individual.

- One of the most difficult jobs of a manager/supervisor is evaluating the performance of his/her employees. To do this properly the evaluation system must, as Westcott puts it, "be continual, fact based, and founded on

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15) Concurrent engineering brings all affected parts of the organization into the planning loop early on so what engineering designs will satisfy manufacturing requirements and result in something marketing can sell.

clear, established, and communicated expectations" (p. 176).

- When staffing the quality function a number of different types of positions may be needed depending on the size of the organization. Typical titles include vice-president for quality (in a quite large organization), quality director, quality manager, quality specialist, quality inspector, etc.

III-A-5 Financial Management

- It is important for the quality (or any) manager to learn how to speak the language of management, namely *finance*.

- Financial reporting starts with bookkeeping. There are two methods: cash basis and accrual basis. The cash basis method books expenses and income when actually paid/received, the accrual method as soon as these transactions occur regardless of when the cash is actually paid/received. Most organizations use the accrual method, which better relates expenses with income.

- There are three common financial statements: the balance sheet, the profit and loss (income) statement, and the cash-flow statement. The Securities and Exchange Commission (SEC) also requires a statement of shareholder equity.

- The balance sheet shows an organization's financial condition at a certain point in time—e.g., on the last day of the quarter or year—in terms of its assets, liabilities and owners' equity.

- The profit and loss statement shows the organization's financial performance over a certain period—e.g., a quarter or year—in terms of income, expenses, and the resulting profit (or loss).

- The cash-flow statement shows the incoming and outgoing cash flows for the organization over a certain period. This statement is important since it can show whether the organization has enough cash from internal operations to meet all its operational and debt requirements.

- Another way to show information on an organization's finances is the use of ratios. Here are some examples:

Ratio	Equals
Current Ratio	$\dfrac{\text{Current assets}}{\text{Current liabilities}}$
Acid Test (Quick) Ratio	$\dfrac{\text{Cash + Accounts Receivable}}{\text{Current liabilities}}$
Debt/Equity Ratio (% debt)	$\dfrac{\text{Total long-term debt}}{\text{Total long-term debt + Total owners' equity}}$
Debt/Equity Ratio (% equity)	$\dfrac{\text{Total owners' equity}}{\text{Total long-term debt + Total owners' equity}}$
Gross Profit Margin	$\dfrac{\text{Gross profit}}{\text{Net sales}}$
Inventory Turnover	$\dfrac{\text{Cost of goods sold}}{\text{Average inventory}}$
Days Receivable Outstanding	$\dfrac{\text{Average Accounts Receivable}}{\text{Net Sales}} \times 365$
Days Payables Outstanding	$\dfrac{\text{Average Accounts Payable}}{\text{Cost of Sales}} \times 365$
Working Cap. /Dollar of Sales	$\dfrac{\text{Average Working Capital}}{\text{Net Sales}}$
Return on Investment (ROI)	$\dfrac{\text{Net dollar benefit}}{\text{Investment (Net costs)}}$

- Ratios provide a useful way to make quick comparisons about various aspects of an organization's finances.
- How an organization determines the costs of its products/services is important. The traditional way of allocating costs by some arbitrary factor such as a percentage of direct labor costs is being replaced by activity-based costing (ABC)[16]

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16) ABC allocates costs based on the costs of activities actually involved in producing the product or service and is therefore much more accurate.

- An organization's budget flows from its strategy and initially is estimated both at the top level (on a macro basis) and within each operating unit (on a micro basis). Usually through an iterative process agreement is reached with top management on the budget for each operating unit resulting in the budget for the whole organization.

III-A-6 Risk Management

- An important part of risk management is first understanding the types of risk an organization can face. These could range from minor such as an easily corrected manufacturing or supplier error, to major such as the sudden loss of key personnel or serious damage due to an earthquake or fire.

- Once an organization has identified the most likely types of risks to which it will be exposed it then takes action relative to each type to either eliminate it or minimize its impact should it occur. Risk management actions could be such things as additional insurance coverage, development of contingency plans, and the training of personnel.

III-A-7 Knowledge Management

- As knowledge become more important for maintaining a competitive edge so too does its effective management.

- Knowledge management involves the systematic acquisition and storage of data and information in a way it can be readily accessed and used for creating knowledge and wisdom.

- Ideally an organization becomes a "learning" organization, using its knowledge to continually gain an every greater understanding of how things work.

Some other key points for further consideration (Management Skills and Abilities):

- The basic functions of management have not changed. However organizations have, with a greater emphasis on the customer necessitating a

greater deployment of the management responsibilities throughout the organization.

- As part of the participative style of management, management by walking around (MBWA) keeps the manager in touch with what is really going on.

- The coaching style of management, when done right, will help employees move beyond what they think they are capable of.

- An organization composed of functional "silos" is not only highly dysfunctional in terms of internal cooperation but worse yet tends to focus on maintaining the status quo!

- An organization's information technology should be based on its strategy, *not simply the latest technology*.

- By taking a systems view of the organization, it often becomes apparent that some suboptimization of the parts will make the whole organization more effective.

- Another advantage of systems thinking is it allows the organization to consider the use of more than one approach to meet its strategic goals; for example, Six Sigma in conjunction with other approaches to quality.

- It is the quality manager's responsibility to be sure information on the organization's quality policies and procedures are part of the new-employee orientation.

- To remain credible, performance evaluations should focus on what is really important, not the trivial.

- Besides many others, an important reason for good, continuous appraisals is to keep the employee aligned with the organization's mission.

- The use of activity based costing (ABC) has often resulted in discontinuance of a product found not to be worth its costs.

- An important part of good knowledge management is to foster an open

communications work environment that "encourages the identification of new information and knowledge that can be exploited for individual and organizational learning and development" (p. 205).

- Another important part of knowledge management is converting tacit knowledge—mostly in people's heads—to explicit knowledge; i.e., knowledge recorded and available to others.

- Knowledge management can play an important role in how an organization differentiates itself from its competitors—a key to long-term success.

- With its focus on processing data vs. strategy, the information technology (IT) department may not be the right place for ownership of the knowledge management function. In fact knowledge management needs to be treated as a top-level strategy by management.

III-B Communication Skills and Abilities (Chapter 9 in Westcott)

Brief summary of chapter:

III-B-1 Communication Basics

- Good communications occurs when the sender's message is received, understood, and acted upon[17] by the receiver. There are many potential barriers to good communication (called filters) such as cultural or language differences, differences in education and experience, and the level of trust that exists between those communicating.

- Communications within an organization flows vertically (management to subordinate and vice versa) and horizontally (e.g., across functional lines).

- Communications can be verbal (written or oral) or non-verbal (body language). It is important for the verbal oral message to be consistent with

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17) This may be simply noting the information in the message for possible future use.

the non-verbal message.

- Communications can also be formal (e.g., procedures, business letters, etc.) or informal (e.g., discussions or e-mails between peers). One important form of informal communications is the organization's grapevine.

- The appropriate media for communicating depends on such things as the urgency of the message, the number and dispersion of the intended receivers, and the degree of confidentiality needed.

- Good questioning can greatly enhance the effectiveness of the communications and is an important skill especially for quality mangers.

- Good interpersonal skills such as showing empathy, being tactful, and being open minded also contribute to effective communications.

- Being a good listener is another important communications skill. As Westcott says "It is a truism that we should talk less and listen more" (p. 223).

III-B-2 Communications in a Global Economy

- There can be many obstacles to communications in a global economy such as cultural, language, time, and management style differences. To overcome these obstacles, top management must be willing and committed "to adapt and adopt to new ways of communicating and to integrate those ways with the practices of the organization" (p. 225).

III-B-3 Communications and Technology

- Information technology (IT) has now become a very important factor in organizational communications and applies to three main tasks: operations support, day-to-day decision making, and strategic analysis.

- Examples of the operations support task: keeping track of sales via point-of-sale data entry terminals, a sales person being able to access in real time the amount of stock in inventory, and the monitoring and control of processes.

- Examples of the day-to-day decision making task: tracking such things as the sales of each product, how well delivery times are being met, and customer satisfaction to base resource allocation or corrective action decisions on.

- Examples of the strategic analysis task: combining the "micro-level" data about such things as sales, customer satisfaction, and financial performance to see how well the strategic goals are being met, and to plan the best way ahead for the organization.

- Some important things to consider when setting up the IT system are: the balance between centralization/decentralization, the amount of redundancy that is prudent, the competency of the employees to effectively use the system (what training is required?), and being sure the information being gathered by the system is really what needed and is being provided when and where it is needed.

- Another important consideration is how the information is presented. It should be presented in a way that allows for its most effective use. For example, will a particular type of graphical display be the best way for the intended user to quickly understand what he/she needs to know?

- The organization's information system must operate as an integrated whole; i.e., in a way that ensures the vertical and horizontal alignment of the organization's processes and performance measures. In other words in a way that lower-level processes/measures support higher ones and upstream/downstream processes/measures work together.

Some other key points for further consideration (Communications Skills and Abilities):

- An important thing to remember when communicating is to do so from the other person's perspective of things; e.g., language, education, cultural background, etc.

- Frequent and honest communications with employees will help keep the

grapevine from spreading misinformation. This also enhances trust between the manager and the employees.

• Active listening is one way to improve communications. This means to paraphrase back to the sender the message the receiver has received to be sure it is what the sender meant. This is important because, as Westcott succinctly puts it, "hearing and listening are distinctly different" (p. 223).

• The organization's information system should support and be well integrated with its strategy. This is the job of the chief information officer or his/her equivalent.

• Depending on how well the information system truly supports the organization's ability to be responsive to its customers, it can be either a competitive advantage or a competitive disadvantage.

• It is well to keep in mind that the continual rapid advances in IT are bringing about many changes in how people behave and interact with one another. Examples include the cell phone, the Internet/intranet, e-mail, and devices like the Blackberry.

III-C Project Management (Chapter 10 in Westcott)

Brief summary of chapter:

• Projects can be initiated for a variety of reasons; e.g., to achieve some objective dictated by a higher-level strategic goal, in response to an audit finding, or to improve a process.

• Accordingly, projects can range from relatively simple, short-term (say, one year or less) efforts not involving other functions of the organization to complex, long-term efforts that involve multiple functions or even other organizations.

• There are five stages to a project's lifecycle:

1. Visualizing, selling, and initiating the project

2. Planning the process

3. Designing the processes and outputs (deliverables)

4. Implementing and tracking the project

5. Evaluating and closing out the project

III-C-1 Project Management Tools[18]

- During stage one—visualizing, selling, and initiating the project—such things as risks involved with the project and the project's benefits versus costs are considered.

- Very generally a project's benefits-to-costs ratio is the estimated sum of all anticipated benefits (expressed in dollars) over the estimated sum of all anticipated costs. Both direct and indirect benefits/costs should be considered although indirect benefits/costs are often difficult to quantify.

- Some common methods for assessing a project's benefits vs. costs and deciding if the project should go forward are: payback period, net present value (NPV), internal rate of return (IRR), potential return on investment (ROI), and estimated return on assets (ROA).

- Even if a project shows a very favorable benefits-to-costs ratio it may not be prudent to undertake if it would overtax the organization's resources.

III-C-2 Project Planning and Estimation Tools

- According to Westcott (pp. 247/8) a typical project could involve as many as 15 steps (see chart next page).

- For smaller projects all 15 steps may not be required or some can be simplified.

- For step 5—project team formation—anyone who will be responsible for implementation of any of the team's recommendations must be represented on the team.

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18) This part is concerned with the first stage: visualizing, selling, and initiating the project.

Step	Comment
1. Statement	To define problem or opportunity
2. Project justification	Based on benefits vs. costs
3. Drafts	Of mission, scope, objectives
4. Stakeholder requirements	Plus impact of not meeting them
5. Project team formation	Selection based on stakeholder representation needed/skill(s) needed
6. Mission statement (updated)	Drafts updated and charter written
7. Deliverables	Includes those for managing project
8. Work breakdown structure	Could include responsibilities and resources required for each task
9. Gantt chart (matrix)	To show estimated start/finish times
10. Time-dependent task diagram	For example CPM or PERT
11. Resource requirements matrix	To show what resources are required when (personnel, materials, etc.)
12. Linear responsibility matrix	To show who has responsibility for what (for larger projects)
13. Project budget	An itemized budget
14. Measurements and reports	How progress/completion determined
15. Completed project plan	Presented for approval sign-off

- Deliverables (step 7) could include such things as engineering specifications, various plans related to implementation of the project, progress reports, and project documentation for adding to the organization's knowledge base.
- Although the Gantt chart (step 9) is easy to understand and may be satisfactory for small projects, it doesn't show the interdependencies among project activities that may be required for larger projects. For this, one of the following methods can be used: activity network diagram (AND), critical path method (CPM), or program/project evaluation and review

technique (PERT).

- A resource requirements matrix (RRM) ensures that project planning has fully considered what resources are needed and when they are needed. For large projects there might be a RRM for each category of resources such as personnel, facilities, equipment, materials, and consulting services.

- Other information about resources to be included in the project plan might be who is authorized to make the resources available, how will they be delivered, what will they cost, and who will pay for them?

- From the resource requirements documentation (e.g., the RRMs) should flow the project budget. This could be in the form of detailed costs for each project activity and/or detailed costs broken down by labor and non-labor.

- The project budget then becomes an important document for getting management's approval of the project and for monitoring and controlling the project as it goes forward.

III-C-3 Measure and Monitor Project Activity

- For stage 3 in the project lifecycle—designing the processes and outputs (deliverables)—the only thing Westcott says is: "The tools used in designing the processes and deliverables will depend upon the type of projects planned" (p. 263).

- For stage 4—implementing and tracking the project—several important performance measures come into play such as those tracking the following: the timeliness of completion of scheduled activities, budget variances, and resource usage.

- Another important tool is one that allows the project manager to continually assess any potential risks—such as not meeting the scheduled completion date—so contingency plans can be developed/updated.

- For stage 5—Evaluating and closing out the project—some typical measures include: deliverables achieved, how well the schedule and budget were met, operational improvements (e.g., reduced cycle time), and lessons learned. In fact, there could be many more depending on the project.

III-C-4 Project Documentation

- Good project documentation serves several purposes such as helping ensure the project is well managed, providing a way to communicate the project's status to all concerned, keeping the project's records up to date, and providing information that can be used for future project planning (e.g., lessons learned).

- A post-project audit/assessment may be used to compare the project's anticipated results with what actually happened. This can occur both shortly after the project finishes and/or over an extended period thereafter.

Some key points for further consideration (Project Management):

- A challenge quality manager's often face is financially quantifying the benefits and costs of a project; e.g., the benefit of an expected improvement in customer satisfaction.

- For relatively simple projects the Gantt chart is not only a way to graphically lay out what is to be done when but can also be used to show actual accomplishment of each task and where and why delays are occurring.

- Given the uncertainty of things in general—e.g., the sudden unexpected nonavailability of key personnel or material—a good feedback system to tell the project manager as soon as such things occur is essential.

- One very important project planning consideration is "how and from whom the project team is to request help when necessary" (p. 262).

- A well thought out strategy should be developed for dealing with any re-

    ally serious potential risks that have a relatively high probability of oc-
currence.

- Good project documentation will add to the organization's knowledge database and, if used, make each successive project better (the PDCA cycle[19]).

III-D Quality System (Chapter 11 in Westcott)

Brief summary of chapter:

- The answer to the question "What is quality?" depends on how quality is viewed. For example, one view of it could be based on any of several common definitions such as Crosby's "conformance to requirements" or Juran's "fitness for use."

- Another view could be in terms of whether the organization is truly customer-focused, whether it believes in designing quality into the product/service vs. "inspecting it in," and if quality is part and parcel of its strategy.

III-D-1 Quality Mission and Policy

- The mission of the quality management function is to ensure that (1) the organization's mission has a customer and quality focus, (2) all suppliers/employees understand the basic principles of quality and how to apply them, and (3) all employees have and know how to use the tools needed to deliver quality products/service.

- The quality management function should both influence the organizations mission and be a reflection of that mission in terms of what is empha-

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19)   PDCA stands for plan, do, check, and act. The PDCA cycle is a simple but powerful way to look at quality improvement: *plan* the improvement (whatever it may be), carry it out (*do* it), *check* if the desired results were achieved, and *act* on the information from the "check" step to make further improvements and repeat the cycle.

sized; e.g., timeliness over cost. That is, there should be a close linkage between the quality management function's mission statement and that of the organization as a whole.

- As mentioned in section II-C (Strategic Plan Deployment), the quality manager plays a major role in the strategic planning process that includes development of the quality policy, quality management principles and, strategic quality objectives.

- The effectiveness of the organization's quality policy is measured by how well the quality-related objectives are achieved. And this, in turn, is determined by how well the quality policy is backed by top management.

III-D-2 Quality Planning, Deployment, and Documentation

- The quality plans of an organization exist at two levels: those at the highest level, which form a part of the overall strategic plan, and those at the operating level.

- Those at the strategic level provide guidance for the development of each function's operating-level quality plans.

- To quote Westcott (p. 280): "The operating-level quality plan translates the customer requirements (the what) into actions required to produce the desired outcome (the how) and couples this with applicable procedures, standards, practices, and protocols to specify precisely what is needed, who will do it, and how it will be done."

- As the product/service is produced there may be additional documentation such as inspection results, customer certifications, etc. that, when associated with the quality pan, become a record of how well the plan was accomplished.

III-D-3 Quality System Effectiveness

- Tools for evaluating the effectiveness of an organization's quality system fall into two categories: macro-level and micro-level.

- Examples of macro-level evaluation tools are:
  ○ Balanced Scorecard (see footnote 12).
  ○ Baldrige Application Self-Analysis Worksheet (goggle Baldrige).
  ○ ISO 9004:2000 Quality Management Systems—Guidelines for Performance (see its Annex A) (goggle ISO 9000).
  ○ ISO 9004 Assessment Criteria Checklist for Performance Improvement (CD available from ASQ).
- Examples of micro-level evaluation tools are:
  ○ Quality audits
  ○ Managing by Walking Around (MBWA). This is an informal look at the organization's quality system by a senior manager. He/she could follow an order from receipt to delivery, look at a specific function (e.g., order processing) or simply walk through a part of the organization asking questions.
  ○ Management reviews.
  ○ Skip-level meetings. Here a senior manager will meet with person two or more levels below without the intervening manager(s) to get direct feedback on how the quality system is perceived.
  ○ Cost of quality measures[20].
  ○ Return on quality investments.

Some other key points for further consideration (Quality System):

- It is usually better for an organization to focus more on their customers instead of what their rivals are doing.
- According to Crosby quality is "free"; that is, resources devoted to quality improvements are more likely to have a greater payoff than any other investment option.

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20) See Austenfeld (2006) for more on the cost of quality and its measures.

- A quality audit is a micro-level evaluation of quality activities to see if they efficiently and effectively produced the intended results.

- Quality audits can be first-, second-, or third-party. A first-party audit is an internal one by the organization. A second-party audit is one by the customer (also called a supplier audit). A third-party audit is one by an independent party (e.g., one to gain ISO 9001 certification).

- The scope of a quality audit can range from the examination of a single product or service to the evaluation of an organization's entire quality management system.

- An important part of a quality audit is the effective follow-up on the recommended corrective measures.

III-E Quality Models and Theories (Chapter 12 in Westcott)

Brief summary of chapter:

- An organization needs a well-structured system (model) to manage its quality-related activities. The most commonly used models are the Baldrige National Quality Program (BNQP), the Deming Prize, and the ISO 9000 series standards.

III-E-1 BNQP Criteria for Performance Excellence

- The BNQP criteria for performance excellence is based on seven categories of activities working together as a system within the context of an organizational profile:

  1. Leadership

  2. Strategic Planning

  3. Customer and Market Focus

  4. Measurement, Analysis, and Knowledge Management

  5. Workforce Focus

  6. Process Management

7. Results

Appendix E provides more information on these seven categories and how they interrelate. A prize is awarded annually to organizations that meet the program's stringent requirements.

• Other major quality award programs are: the European Quality Award, the Deming Prize (a Japanese program), and the Shingo Prize for Excellence in Manufacturing (to promote lean manufacturing).

III-E-2 ISO and Other Third Party Standards

• The ISO 9000 series consists of these three publications:

○ ANSI/ISO/ASQ Q9000-2000: *Quality management systems—Fundamentals and vocabulary*. As the name implies, it covers fundamentals and terms/definitions.

○ ANSI/ISO/ASQ Q9001-2000: *Quality management systems— Requirement*. This is the standard against which an organization is audited to obtain ISO 9001 certification.

○ ANSI/ISO/ASQ Q9004-2000: *Quality management systems—Guidelines for performance improvement*. A comprehensive set of guidelines to help an organization go beyond the minimum requirements of the ISO 9001 standard.

• As with the Baldrige criteria, the ISO 9001 standard lays out the requirements for a good quality management system in general terms. It is up to the organization to adapt it to its particular situation.

• The ISO 9001 standard is based on eight quality management principles:

○ Customer focus

○ Leadership involvement

○ Involvement of people at all levels

○ Process management

○ System approach to management

  ◦ Continual improvement

  ◦ Fact-based decisions

  ◦ Mutually beneficial supplier relationships

- The requirements of ISO 9001 are grouped according to these five areas:

  ◦ Quality management system

  ◦ Management responsibility

  ◦ Resource management

  ◦ Product realization

  ◦ Measurement, analysis, and improvement

- There are many other ISO 9000-related standards such as: ANSI/ISO/ ASQ Q190115-2004: *Guidelines for Quality and/or Environmental Management Systems Auditing*, ISO/TS 16949-2002: *Quality Management Systems* (requirements for applying ISO 9001 to automotive production), SAE AS9100-2001: *The International Aerospace Quality System Standard*, and ANSI/ISO/ASQ E14001-2004: *Environmental Management Systems*.

III-E-3 Other Quality Methodologies

- Other quality methodologies include total quality management (TQM) and continuous quality improvement (CQI).

- To quote Westcott (p. 304): TQM is a "management system for a customer-focused organization that involves all employees in continual improvement of all aspect of the organization." Its primary elements are:

  ◦ Customer-focused

  ◦ Total employee involvement

  ◦ Process-centered

  ◦ Integrated system

  ◦ Strategic and systematic approach

◦ Continual improvement

◦ Fact-based decision making

◦ Communications

- These elements, for the most part, are also those upon which the Baldrige criteria and the ISO 9001 requirements are based.

- Subsets of the continuous (or continual) quality improvement methodology are: *kaizen*, Six Sigma, and benchmarking.

- *Kaizen* is a Japanese word meaning continual improvement. One of the most common applications of this concept is the kaizen event (sometimes called kaizen blitz). A kaizen event is a team effort typically over a five-day period to carry out a specific quality improvement project. Examples might be reconfiguring a workplace to make it more efficient or changing a process to reduce its cycle time.

- The Six Sigma methodology is used to reduce variation in a production process so the number of defects is essentially zero. See Austenfeld (2000) for more on Six Sigma.

- When benchmarking, an organization studies the processes of a world-class organization to see how it can improve it own similar processes. The processes need not be identical as long as there is some essential commonality.

III-E-4 Quality Philosophies

- Some of the major contributors to quality and some of their key ideas/ contributions are shown in the chart on the next page.

Some other key points for further consideration (Quality Models and Theories):

- A key aspect of the latest version of ISO 9001 (published in 2000) is its emphasis on customer satisfaction and continual improvement.

- According to Westcott, ISO 9004 (see above) "is the key to unlock the real potential of a QMS [quality management system] to produce a mea-

Major Contributor	Some of Their Key Ideas/Contributions
Philip B. Crosby	Quality is conformance to requirements, "zero defects" is the only performance standard, to prevent nonconformance companies need a "vaccine" composed of determination, education, and implementation.
W. Edwards Deming	His 14 Points, the seven deadly "diseases," and his system of profound knowledge (see Appendix F).
Armand V. Feigenbaum	Total quality control (TQC), which is "excellence" (vs. "defect") driven and supported by: quality leadership, quality technology, and organizational commitment. Cost and quality are complementary.
Kaoru Ishikawa	TQC is everyone responsibility and is a team activity, quality over short-term profits, quality circles, and the cause-and-effect diagram.
Joseph M. Juran	The Quality Handbook, his trilogy (quality planning, control, and improvement), the three levels of quality management: strategic, operational, and workforce, and the diagnostic and remedial journeys of the universal sequence.
Walter A. Shewhart	Statistical quality control, two types of causes of variation (chance and assignable), the plan-do-check-act (PDCA) cycle.
Genichi Taguchi	The efficient use of design of experiments, quality is "the (minimum) loss imparted by a product to society…" (the Taguchi loss function).

surable return on investment" (p. 301). Unfortunately, it is largely ignored.

• Just as with winning the Baldrige, being certified to ISO 9001 is no guarantee that an organization will produce high quality products/service. However, it is usually a very positive indication of such.

• What is a process? According to Westcott: "A process is a series of steps that take inputs from suppliers (internal or external) and transforms them into outputs that are delivered to customers (again, either internal or

external)" (p. 304).

- The term TQM is not used as much today with its concepts, principles, and methods now usually considered a part of what is called quality management.

- One of Deming's seven deadly diseases especially worth noting is "running a company on visible figures alone" since unknown figures are often the most important; e.g., the multiplier effect of a happy customer.

- Quality is much more than managing defects; it is a philosophy and commitment to excellence (Feigenbaum).

Summary and Conclusion To Part 1

The purpose of this paper is to provide a relatively brief overview of what today's quality manager is expected to know, essentially the body of knowledge (BOK) which the American Society for Quality (ASQ) uses to develop its examination for Manager of Quality/Organizational Excellence (MOQ/OE) certification. Westcott's handbook is the basic reference for the information in this paper. Due to the magnitude of the information in Westcott (and the BOK) this paper is divided into two parts. This part has covered the following:

- Introduction to Part 1
- I Leadership (Chapters 1–4 in Westcott)
- II Strategic Plan Development and Deployment (Chapters 5–7 in Westcott)
- III Management Elements and Methods (Chapters 8–12 in Westcott)
- Summary and Conclusion to Part 1

Part 2, available in about six months from the date of this paper, will cover the following:

- IV Quality Management Tools (Chapters 13–15 in Westcott)
- V Customer-Focused Organizations (Chapters 16 & 17 in Westcott)

Robert B. Austenfeld, Jr.:   The Quality Manager Body of Knowledge (Part 1)

- VI Supply Chain Management (Chapter 18 in Westcott)
- VII Training and Development (Chapter 19 in Westcott)

As even a quick look at this paper will reveal, the knowledge a quality manager is expected to know essentially covers the full range of management. This is an indication that today's quality manager is also expected to be knowledgeable in all aspects of good management and, in fact, the two areas—quality and good general management—are really one and the same!

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Appendix A (page 1 of 4 pages)

Outline of the Manager of Quality/Organizational Excellence Body of Knowledge

(http://www.asq.org/certification/manager-of-quality/bok.html)

<u>Note</u>: The numbers in parentheses indicate the corresponding chapter in Westcott (2006).

I. Leadership

A. *Organizational Structures and Culture* (1)
1. Organizational structures
2. Organizational culture

B. *Leadership Challenges* (2)
1. Roles and responsibilities of leaders
2. Roles and responsibilities of managers
3. Change management
4. Motivating, influencing, negotiating, resolving
5. Empowerment

C. *Teams and Team Processes* (3)
1. Types of teams
2. Stages of team development
3. Team-building techniques
4. Team roles and responsibilities
5. Team performance and evaluation

D. *ASQ Code of Ethics* (4)

II. Strategic Plan Development and Deployment

A. *Strategic Planning Models* (5)

B. *Business Environment Analysis* (6)
1. SWOT analysis
2. Market forces
3. Stakeholder analysis
4. Technology
5. Internal capability analysis
6. Legal and regulatory factors

C. *Strategic Plan Deployment* (7)
1. Action plans
2. Resource allocation and deployment
3. Organizational performance measurement
4. Quality function in strategic deployment

Appendix A (page 2 of 4 pages)

Outline of the Manager of Quality/Organizational Excellence Body of Knowledge (continued)

III. Management Elements and Methods	
A. *Management Skills and Abilities* (8)	1. Principles of management
	2. Management theories, styles, and tools
	3. Interdependence of functional areas
	4. Human resources (HR) management
	5. Financial management
	6. Risk management
	7. Knowledge management
B. *Communication Skills and Abilities* (9)	1. Communication basics
	2. Communications in a global economy
	3. Communications and technology
C. *Project Management* (10)	1. Project management tools
	2. Project planning and estimation tools
	3. Measure and monitor project activity
	4. Project documentation
D. *Quality System* (11)	1. Quality mission and policy
	2. Quality planning, deployment, and documentation
	3. Quality system effectiveness
E. *Quality Models and Theories* (12)	1. BNQP criteria for performance excellence
	2. ISO and other third-party standards
	3. Other quality methodologies
	4. Quality philosophies

Appendix A (page 3 of 4 pages)

Outline of the Manager of Quality/Organizational Excellence Body of Knowledge (continued)

IV. Quality Management Tools

A. *Problem-Solving Tools* (13)
1. The seven classic quality tools
2. Basic management and planning tools
3. Process improvement tools
4. Innovation and creativity tools
5. Cost of quality (COQ)

B. *Process Management* (14)
1. Process goals
2. Process analysis
3. Lean tools
4. Theory of constraints (TOC)

C. *Measurement: Assessment and Metrics* (15)
1. Basic statistical use
2. Sampling
3. Statistical analysis
4. Trend and pattern analysis
5. Theory of variation
6. Process capability
7. Reliability and validity
8. Qualitative assessment
9. Survey analysis and use

V. Customer-Focused Organizations

A. *Customer Identification and Segmentation* (16)
1. Internal customers
2. External customers
3. Segmentation

B. *Customer Relationship Management* (17)
1. Customer needs
2. Customer satisfaction and loyalty
3. Basic customer service principles
4. Multiple and diverse customer management

Appendix A (page 4 of 4 pages)

Outline of the Manager of Quality/Organizational Excellence Body

of Knowledge (continued)

VI. Supply Chain Management (18)

    A. *Supplier Selection*

    B. *Supplier Communications*

    C. *Supplier Performance*

    D. *Supplier Improvement*

    E. *Supplier Certification, Partnerships, and Alliances*

    F. *Supplier Logistics*

VII. Training and Development (19)

    A. *Training Plans*

    B. *Needs Analysis*

    C. *Training Materials/Curriculum Development and Delivery*

    D. *Training Effectiveness and Evaluation*

APPENDIX B

KESAA Example

(From Westcott, 2006, p. 69)

Project Staffing—KESAA Requisites Aanalysis

[Define KESAA factors for each key project participant planned on the resource requirements matrix—personnel]

Task/work package name: Train project managers in using new Microsoft Project software
Task/WP number: 3.10.01.01
Job/position category/title: Application software specialist

Knowledge	• Knows proven techniques for designing and delivering software training to people with diverse knowledge, experience, and skills • Extensive knowledge of project planning and management techniques, tools, and practices • Received Microsoft certificate for completing the advanced MS Project five-day training program within last four years • Earned college degree (software major)
Experience	• Has instructed project teams in use of MS Project at a previous employer, two or more times • Used MS Project on two or more previous large-scale projects • Has demonstrated proficiency in providing software technical support for MS Project users working on large-scale projects • Has demonstrated proficiency in using thorough, rapid, and user-friendly techniques for training new software users
Skills	• Possesses excellent communication skills (reading comprehension, instructing, technical writing, and listening) • Proficient in using all Microsoft Office software • Trained in using proven instructional technology in training design, delivery, and evaluation
Aptitude	• Has capability to adapt the MS Project training to the special needs of each participant • Has worked well in a team environment that is subject to frequent changes. Fast learner.
Attitude	• Enjoys imparting his/her knowledge and skills to new software users • Measures his/her success on the improved performance of those trained by him/her • Believes that MS Project is the best selection of project management software, at this time and place • Exhibits "What can we do to make this happen?" demeanor

Additional comments:
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_____
_____
_____

Prepared by: Anna Lyst   Date: June 30, 2004

APPENDIX C

American Society for Quality (ASQ) Code of Ethics

(http://www.asq.org/about-asq/who-we-are/ethics.html)

Fundamental Principles

ASQ requires its members and certification holders to conduct themselves ethically by:

 I. Being honest and impartial in serving the public, their employers, customers, and clients.

 II. Striving to increase the competence and prestige of the quality profession, and

 III. Using their knowledge and skill for the enhancement of human welfare.

Members and certification holders are required to observe the tenets set forth below:

Relations With the Public

Article 1 – Hold paramount the safety, health, and welfare of the public in the performance of their professional duties.

Relations With Employers and Clients

Article 2 – Perform services only in their areas of competence.

Article 3 – Continue their professional development throughout their careers and provide opportunities for the professional and ethical development of others.

Article 4 – Act in a professional manner in dealings with ASQ staff and each employer, customer or client.

Article 5 – Act as faithful agents or trustees and avoid conflict of interest and the appearance of conflicts of interest.
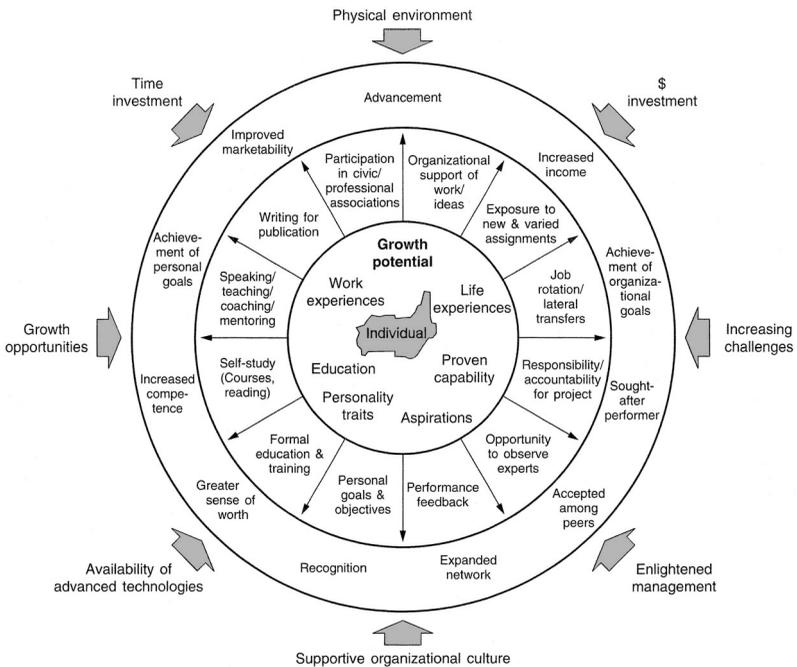
Relations With Peers

Article 6 – Build their professional reputation on the merit of their services and not compete unfairly with others.

Article 7 – Assure that credit for the work of others is given to those to whom it is due.

APPENDIX D

The Many Factors That Go Into the Mutual Development of an Employee

(From Westcott, 2006, p. 175)

APPENDIX E (Page 1 of 2)

Baldrige Criteria for Performance Excellence Framework

(http://www.quality.nist.gov/PDF_files/2007_Business_Nonprofit_Criteria.pdf)

The Core Values and Concepts are embodied in seven Categories, as follows:

1 Leadership   **5 Workforce Focus**

2 Strategic Planning   **6 Process Management**

3 Customer and Market Focus   **7 Results**

4 Measurement, Analysis, and Knowledge Management
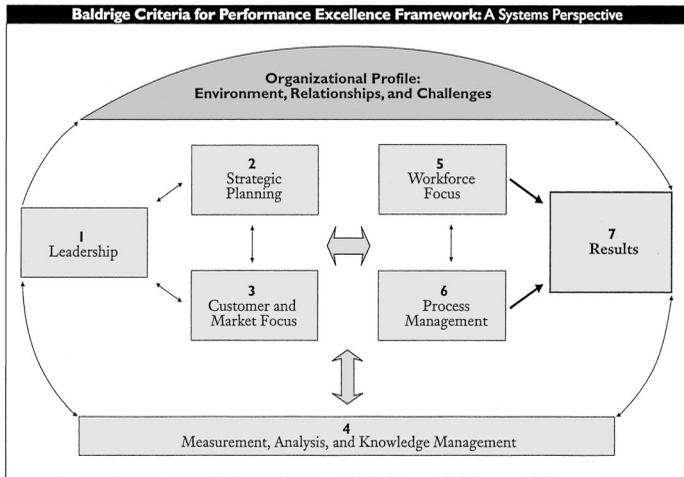
The figure above provides the framework connecting and integrating the Categories. From top to bottom, the framework has the following basic elements.

Organizational Profile

Your Organizational Profile (top of figure) sets the context for the way your organization operates. Your environment, key working relationships, and strategic challenges and advantages serve as an overarching guide for your organizational performance management system.

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Baldrige Criteria for Performance Excellence Framework (continued)

System Operations

The system operations are composed of the six Baldrige Categories in the center of the figure that define your operations and the results you achieve.

Leadership (Category 1), *Strategic Planning* (Category 2), and *Customer and Market Focus* (Category 3) represent the leadership triad. These Categories are placed together to emphasize the importance of a leadership focus on strategy and customers. Senior leaders set your organizational direction and seek future opportunities for your organization.

Workforce Focus (Category 5), *Process Management* (Category 6), and *Results* (Category 7) represent the results triad. Your organization's workforce and key processes accomplish the work of the organization that yields your overall performance results. All actions point toward Results—a composite of product and service, customer and market, financial, and internal operational performance results, including workforce, leadership, governance, and social responsibility results. The horizontal arrow in the center of the framework links the leadership triad to the results triad, a linkage critical to organizational success. Furthermore, the arrow indicates the central relationship between *Leadership* (Category 1) and *Results* (Category 7). The two-headed arrows indicate the importance of feedback in an effective performance management system.

System Foundation

Measurement, Analysis, and Knowledge Management (Category 4) are critical to the effective management of your organization and to a fact-based, knowledge-driven system for improving performance and competitiveness. Measurement, analysis, and knowledge management serve as a foundation for the performance management system.

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Deming's 14 Points, Seven Deadly Diseases, and System of Profound Knowledge

(http://en.wikipedia.org/wiki/W._Edwards_Deming)

Deming's 14 points:

1. Create constancy of purpose for the improvement of product and service, with the aim to become competitive, stay in business, and provide jobs.

2. Adopt a new philosophy of cooperation (win-win) in which everybody wins and put it into practice by teaching it to employees, customers and suppliers.

3. Cease dependence on mass inspection to achieve quality. Instead, improve the process and build quality into the product in the first place.

4. End the practice of awarding business on the basis of price tag alone. Instead, minimize total cost in the long run. Move toward a single supplier for any one item, based on a long-term relationship of loyalty and trust.

5. Improve constantly, and forever, the system of production, service, planning, of any activity. This will improve quality and productivity and thus constantly decrease costs.

6. Institute training for skills.

7. Adopt and institute leadership for the management of people, recognizing their different abilities, capabilities, and aspiration. The aim of leadership should be to help people, machines, and gadgets do a better job. Leadership of management is in need of overhaul, as well as leadership of production workers.

8. Drive out fear and build trust so that everyone can work more effectively.

9. Break down barriers between departments. Abolish competition and build a win-win system of cooperation within the organization. People in research, design, sales, and production must work as a team to foresee problems of production and use that might be encountered with the product or service.

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Deming's 14 Points, Seven Deadly Diseases, and System of Profound Knowledge (continued)

10. Eliminate slogans, exhortations, and targets asking for zero defects or new levels of productivity. Such exhortations only create adversarial relationships, as the bulk of the causes of low quality and low productivity belong to the system and thus lie beyond the power of the work force.

11. Eliminate numerical goals, numerical quotas and management by objectives. Substitute leadership.

12. Remove barriers that rob people of joy in their work. This will mean abolishing the annual rating or merit system that ranks people and creates competition and conflict.

13. Institute a vigorous program of education and self-improvement.

14. Put everybody in the company to work to accomplish the transformation. The transformation is everybody's job.

The Seven Deadly Diseases:

1. Lack of constancy of purpose.
2. Emphasis on short-term profits.
3. Evaluation by performance, merit rating, or annual review of performance.
4. Mobility of management.
5. Running a company on visible figures alone.
6. Excessive medical costs.
7. Excessive costs of warranty, fueled by lawyers who work for contingency fees.

Deming's System of Profound Knowledge:

1. *Appreciation of a system:* understanding the overall processes involving suppliers, producers, and customers (or recipients) of goods and services;

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Deming's 14 Points, Seven Deadly Diseases, and System of Profound Knowledge (continued)

2. *Knowledge of variation:* the range and causes of variation in quality, and use of statistical sampling in measurements;

3. *Theory of knowledge:* the concepts explaining knowledge and the limits of what can be known (see also: epistemology);

4. *Knowledge of psychology:* concepts of human nature.