Advanced KAM 7: The Case Study

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Abstract

This KAM describes a two-year action research project in an industry professional certification program during which process improvement efforts were executed in order to bring the program up to a compliance level that could achieve accreditation against standards of the National Commission for Certifying Agencies. The engagement successfully implemented significant operational improvements in the first year, but failed to achieve the strategic objectives during the second year. Reasons for these outcomes, particularly the impact of misaligned senior management expectations, are outlined and discussed.

Dedication

This KAM is dedicated with thanks to my wife Janet, who lovingly has put up with the periodic lifestyle adjustments demanded by this KAM-based program. Her support and encouragement helped make all seven of these KAMs a reality. Thanks, Jan.

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Introduction

This knowledge area module (Advanced KAM 7) tells the story of a failed change initiative. It applies my learning in the previous six KAMs to a real-world setting in a working organization in an attempt to improve the operation, profitability, and ultimately the viability of a professional certification program in my work field. In the end, human nature overcame the logic of organizational improvement, and a general lack of management support doomed each path within the overall effort to failure. In hindsight, that lack of support should have prevented the attempt; for the literature is full of cases where change fails when management support is absent or insufficient. This case ultimately provides a demonstration of the significant difference between management statements of strong support, and their actual delivery of full support. We had the former, and completely lacked the latter; and a year was spent seeing the difference.

Introduction to the Study

The engagement described in this case study was with the Quality Assurance Institute (QAI) in Orlando, Florida. Founded in 1980 as a for-profit membership association for companies employing information technology quality professionals, QAI specialized in education, training, and conference offerings for quality professionals working specifically in the information technology field. It was the first organization of its kind in the early 1980s, and remained the preeminent information technology quality management association into the early 1990s.

QAI began offering professional certification of quality analysts in 1990. After 10 years of steady growth in its certification operation, by 2000 QAI was finding itself unable to meet the operational and market demands of its successful program. By the mid-1990s, the program had

grown internationally, with a strong presence in Europe, the Middle East, and India. Operationally, the Program was based in the Institute office in Orlando, Florida, and had a clerical support staff of only four people. The growing Program placed severe capacity stress on the staff office, particularly with the higher cost and labor-intensive international applications. Processing time required of the growing demand was placing strains on the staff, and quality and service levels were being sacrificed.

Things were bad enough by 2000 that the Program actually faced a danger of failing as a business because of operational and quality problems in its certification operation. Large backlogs of administrative activities were remaining incomplete well beyond the typical 30 days required to turn around an application package or completed examination, sometimes to as much as three or four months. Some activities, such as reviewing recertificatcion packages received from existing certificants, were simply abandoned after six months; the certificants receiving automatic recertification even though their submissions hadn't actually been reviewed.

The Institute faced a crisis in 1999 when several examination offerings came close to being cancelled because the staff had been unable to prepare examination packages for hosting organizations in time to administer them on assigned dates. While most of the service problems encountered within the operation could be hidden from view, the inability to offer an examination as scheduled threatened the Program's viability. Cancelled examinations would incur extra costs, and generally require refunding some application fees to dissatisfied applicants. The word-of-mouth damage from such failures was expected to impact applications rates.

In parallel, market forces and competition had shifted during those first 10 years, challenging QAI's preeminence in the information technology quality field. In particular, the American Society for Quality (ASQ), which had no specific information technology offerings in

the 1980s, had formed a Software Division in 1990. One of that Division's first Program offerings was the launch of their Certified Software Quality Engineer (CSQE) certification program. ASQ had a strong and well-defined certification program in many disciplines. The launch of their CSQE designation was an immediate competitive threat to the QAI program.

As a result of these capacity, growth, and competitive challenges, QAI was facing some dire and difficult choices when this case study engagement began in 2001

Statement of the Problem

The QAI Certification Program faced both operational and strategic problems in mid-2001 that threatened both its market and competitive position.

Operationally, quality and service levels had declined to the point where customer feedback was becoming negative, and key operational milestones were being missed. Internal processes and staff capacity were simply inadequate to keep up with the administrative demands of the growing program. Activities were taking hours, where only minutes were available. The Program needed to find a sustainable set of procedures and staffing levels to balance processing demand with desired quality and service levels.

Strategically, the integrity and value of the Program certifications were being put at risk by the weaknesses in the operations area, primarily by the processing short-cuts that were being taken to keep the examination and recertification schedules afloat. The Program needed to demonstrate operational integrity in order to reestablish a strong brand image in the market space relative to its leading competitor, ASQ.

While the strategic issues posed the greater threat to the Program, the overall growth, integrity, and value measures were seen as dependent upon a sustainable operational capability.

Purpose of the Case Study

I was brought in by the Institute's CEO, and this case study began, in June 2001. The challenge was to conduct a study of program operations and performance, and recommend strategic and tactical changes that would rescue the program from its decline, and rebuild a capability for future growth and market penetration. My approach was to conduct a client engagement using an Action Theory & Research methodology (Bruce & Wyman, 1998) and document the actions and outcomes of that engagement as a single-case study (Kennedy, 1979). This KAM is the result of that activity.

Overall objectives for this KAM were:

1. To develop an understanding and competency in case study research, with specific attention to being able to adapt case study methods in my professional career as a management consultant. (AMDS 8712)

2. To use these case study methods in an actual client engagement, providing new competencies in managing such an engagement with a stronger grounding in the literature, and stricter controls on process. (AMDS 8722)

3. To document the results of the case study engagement for presentation to the client, and to the academic and management consulting communities. (AMDS 8732)

Purpose of the Engagement

As the engagement began, specific objectives were discussed regarding what could or should be attempted over the course of two years. Initially, such objectives seemed highly speculative given the ad hoc and chaotic nature of the Program at the time. However, because certain potential end goals were visible to the team, and the path between the starting point and the end goals seemed relatively clear. The real issue was whether the patch could be covered in

two years. On the presumption that what we were attempting was reasonably possible, seven overall objectives of the QAI engagement were:

1. *To clarify and update the Program vision, value, and mission statements.* As a quality-oriented organization, QAI included the messages regarding the importance of understanding organizational mission in most of its course and conference offerings; yet the Program had never made any systematic effort to actually articulate the vision and mission under which the Program had been designed and was expected to operate.

2. *To clearly articulate Program goals and objectives.* Translating the vision and mission into certain specific actionable behavior goals would help make the vision and mission real for the staff and other stakeholders.

3. *To define Program standard products and services.* While already operating for over ten years, the actual products and services that were to be made available to the public and internal stakeholders had never actually been defined (e.g. it was unclear to the staff what services they were to provide the public regarding certification claim confirmations), and the staff expressed concern when asked to list their complete list of services.

4. *To define high-level Program process and technology models.* There were no specific processes or tools defined for the Program at the beginning of the study. All processes were *ad hoc* and learned on-the-job by the staff. Variance in process outcomes was significant across staff members. Even high-level procedures were seen as potentially very helpful.

5. *To document gaps between current and envisioned Program processes and products.* It seemed clear at the outset that the actual processes identified in the study would differ considerably from those identified as desirable by the management staff and in the literature. The unknown issue was how big any identified gaps would be.

6. *To clarify the articulation between Program and other Institute functions.* While this study was looking specifically at the QAI certification program, many of the same staff also had responsibilities in the Institute's membership, conference, education, and research programs. Clarifying the touchpoints and interactions of these programs would be necessary if any positive impact was to be expect on staff performance and productivity, otherwise other programs within the Institute might simply absorb productivity benefits in the certification program.

7. *To identify strategic and tactical management dashboard metrics for the Program.* The end of the case study would leave an improved Program with a long list of potential improvements remaining. This study would need to leave behind some form of management mechanism for measuring, evaluating, and prioritizing future change.

Significance of the Engagement

A professional certification program that is not well run exposes the organization running it to potentially major liability. (Jacobs, 2003) The candidates and certificants who participate in the certification programs have tort rights with respect to accuracy of assessments, objectivity and security of examinations, privacy of records, and overall integrity of the program. Even more so, the companies that hire and use professionals certified under a certification program have tort rights in the event that those professionals make mistakes in their professional practice that might put their certification into question. Employers rely on the bodies of knowledge of certification programs, and the certifications granted by those programs, when hiring and employing professional resources in areas where they might not have particular capabilities to assess competency internally. If a certificant fails to perform as expected as indicated by their certification, then many employers seek damages from the certifying body.

The QAI Certification Program certified software quality specialists who are responsible in their careers for planning and executing test scenarios against major software initiatives. Many United States government departments and agencies rely on QAI certifications in their hiring and use of professional software testers. If these certificants fail to perform their functions adequately, significant government and defense functions might be affected. As a result, the quality of the QAI certification program carries risk to our society at large, and reducing that risk through this improvement engagement offers both public benefit, and private liability reduction.

Relationship to Previous KAMs

The timing of this case study paralleled most of my other KAM work in this Walden program. On numerous occasions, my work on this case study incorporated materials I was working on to complete application components of the early KAMs.

Societal KAM 1

My study of societal growth in KAM 1 caused me to explore symbolic-interactionist perspectives that became very relevant to this study. The way management, staff, and outside certificant stakeholders perceive and react to situations in Program processes largely defined the reality of those interactions. This study was less about telling stakeholders what the model was or should be, than allowing the interactions of these individuals to define the Program *post hoc*, with their understandings, beliefs, and expectations serving as critical defining inputs.

Individual KAM 2

Exploring cognitive development in KAM 2 resulted in viewing the participants in this study as individuals with different internal representations of the Program in their minds that impacted their perception of their position in the Program. Language develop structures the conceptualizing of our world cognitively, and individuals working in a field will unitize abstract

and complicated notions in their language. In-group use of this language – or jargon – provides some efficiency in the field relative to communications outside of the field. Individuals on the QAI staff clearly used the language of certification in a richer and deeper manner than external stakeholders with whom they interacted. Professional usage within QAI contrasted with vernacular usage outside of QAI, clarifying some of the frictions and concerns being addressed in this study.

Organizational KAM 3

My study of organizations in KAM 3 focused my attention on an organization's ability to self-organize around a collection of strange attractors embedded in their organizational vision, mission, and culture. At QAI, where the vision and mission were not articulated, such self-organization was resulting in an *ad hoc* and chaotic organization. I learned in the KAM that self-organization doesn't wait for a stable or logical set of attractors. Self-organizing occurs regardless, and the result of such organization around ambiguity can be chaos. By focusing a lot of attention in this study on clarifying the organizational mission, complexity theory predicted that extensive (i.e. nonlinear) improvements could be enacted quickly. That quickness in startup was essential to this study's ability to make extensive progress in the first year.

Research KAM 4

The need to proactively define and address concerns over study validity was deeply engrained in my KAM 4 studies. Knowing the problem to be addressed, and tying that problem and methodology to the literature would enhance future applicability. Defining operational variables, and ensuring that measurements taken of those variables were reliable, was also a key concern. All of these lessons, and more, contributed to my knowledge as a researcher. Indeed,

prior to KAM 4, I wouldn't have described myself as a researcher. After KAM 4, I came to see most of my professional practice as research.

The research attitude is particularly important in the certification field. A certification is a measurement to which employers attach meaning. It is intended to represent a causal relationship between competency and future outcomes. From this perspective, the quality of a certification program is all about the *reliability* and *validity* of that measurement. KAM 4 taught us to take these concepts very seriously, and avoid unwarranted leaps when discussing links between desired constructs and the measurement of those constructs.

Leadership KAM 5

My study of leadership in KAM 5 centered on the functional role that competence plays in identifying and enabling leaders. QAI was a leader in the quality management field through the 1980's because its competence was supreme, and professionals sensed that and chose to follow. The decline in competence within the Institute has been a major contributor to its decline in leadership status. As a result of that decline, mostly self-inflicted through unsound organizational practices, the leadership position that gave credibility to the Institute for issuing professional certifications had eroded. With sound and stable processes, the Program could maintain legitimacy, but the combination of unsound practices coupled with loss of leadership credibility created the crisis that this study attempted to address.

Change KAM 6

Finally, looking at change in KAM 6 allowed me to identify and review the various theories of change that informed this study, particularly Kotter (1996). The Institute's need to fight back from virtual extinction challenged the staff's abilities to change, but survival can motivate fairly extreme action. This study was able to explore and experiment with fairly radical

change suggestions precisely because of its dire situation. The change models in the literature warn that the results of this study may be more difficult to apply in organizations looking to change under less drastic circumstances.

Relationship to Dissertation

This entire case study period served as a precursor to my dissertation proposal work. My research will involve motivational theory, and why individuals seek professional certification in their fields. While my actual study will involve a different setting and sample – Six Sigma Black Belts in a Fortune 100 setting – the program in which this case study was carried out brought the same overall issues and models to relevance. I expect that the lessons learned in this case study, and most of the literature review and methodology development work required to conduct this study, will bear fruit during my dissertation work.

Literature Review

This chapter provides a brief overview of some of the materials available in the literature and standards community related to professional competency certification. It begins by outlining some of the basic parameters of the certification industry and then explores some of the specific issues facing organizations, usually membership associations in the nonprofit sector, and how many such organizations find themselves in operational difficulty at times. Several public and international models are then reviewed that, in combination, provide a roadmap toward higher quality operational capability in a professional certification program. The Methodology in the following chapter describes an engagement that involves an attempt to implement these models.

Certification Marketplace

Certification of professional competency is a growth industry in most market economies around the world, and the majority of major certification programs are operated by nonprofit organizations specifically created to do so. (Facklam, 2002) When one looks for reasons why there should be growth in such a field, one finds many general economic reasons.

Competency Assurance vs. Commodification

Across the industrialized economies of the world, working practitioners in numerous fields pursue professional certification as a means to expand and enhance their work and career opportunities. (Brown, 2002) The personal motivations among such certifying practitioners are likely to vary widely, as are the motivations of employers and professional bodies offering these certifications to employee and member candidates. (Trahair, 1969) In some fields, lack of certification can be viewed as a barrier to entry by employees or employers. (Albert & Darrell,

1999) If not a direct barrier, certification can fulfill employee needs for growth or actualization. (Alderfer, 1972) Organizations that offer certification services must be prepared to support and fulfill a wide range of stakeholder needs.

Career skills in many disciplines are specializing and advancing faster than traditional educational institutions can adapt to changing requirements. Much of the information an individual needs in their job or career is learned through additional post-school training and practice. Something beyond academic degrees from traditional schools is needed to measure and assure competency against these skills. (Employment and Training Administration, 1992) As employees progress through their careers, and their academic degree recedes deeper into their personal past, professional certification offers avenues for individuals to redefine their roles in their careers and professions. (Ashforth, 2001; Bettencourt & Sheldon, 2001)

As this need for competency assurance grows, some individuals will pursue certifications simply to have the credential required by employers without regard to actually developing the professional skills implied by such certification. This results in the 'commodification' of knowledge; or the exchange-value of the credential overtaking the use-value of the education and learning represented by that credential. (Carnevale, 2001a ; Carnevale, 2001b, Dawson, 1987)

Employment Relationships & Distance

There has also been a shift in recent decades toward organizations using staff resources beyond their own direct control. Whether through partnership agreements, joint ventures, or outsourcing agreements; organizations are increasingly using human resources that they themselves do not hire and train. Mechanisms are needed to standardize and authenticate what these human resources can do effectively.

In the face of expanding and accelerating knowledge bases, and a growing distance between human resources and the organizations for which they perform work, the professional certification field has grown rapidly in recent years. The American National Standards Institute (ANSI) refers to the triangulation of products, systems, and personnel. (Hallenbeck, 2002) They have promoted standards and assessments of the product and systems legs of the triad, and only more recently have they begun focusing attention on the personnel leg (largely through the ISO 17024 initiative discussed below).

Membership Associations

When professional societies offer their members opportunities to obtain professional certification in their respective disciplines, the motivation for doing so can be seen as a proxy for the motivation of the society's members in participating in such programs. (Johnson & Mortimer, 2002) Presumably, such membership societies would only pursue such programs if their membership was motivated to participate. (Bryson, 1995) For members, potential motivations might vary among job and career development and opportunity expansion, as well as peer and professional recognition and self-actualization. (Gottfredson, 2002; Holland, 1996) Professional societies might accrue similar benefits on an aggregate scale when increasing numbers of their membership attain certified status.

When private sector companies offer their employees opportunities for certification, the motivations are likely to be more complicated. Companies can be expected to have motivations that differ from those of their employees who choose to participate in such programs. (Liebowitz & Wilcox, 1997; Liebowitz & Beckman, 1998) Companies might be looking for skill and knowledge development, alternative career paths for employees, as well as enhanced recruiting and employee retention. (Holden, 2002) Employees might be looking to benefit from

each of these company intentions, as well as to obtain similar personal benefits that seem to accrue to any other participants in the programs offered by professional societies. (Curry & Wergin, 1993) Studies have shown that the interplay between industry associations and competency standardization is important to the success of certifications or licensure. (United States General Accounting Office, 1993)

Nonprofit member associations tend to form as collectives in response to several of these knowledge and employment trends. As knowledge specialization increases, and distance between employer and worker grows (both geographically and conceptually), membership associations fill a belongingness and information void that has grown in the modern workplace. (Barnett, Mischke, & Ocasio, 2000) Increasingly, the employment community looks to these professional membership associations to define and measure competency in areas of specialization within these societies (i.e., a modern version of medieval guilds). The effectiveness of the resulting certification programs is dependent upon the long-term viability of the societies that oversee them. These organizations must be stable enough in the marketplace to assure value to their 'branded' certification over the career life of the individuals who pursue them.

Association Turnarounds

Many nonprofit membership societies go through slump periods, often driven by economic conditions, particularly growth or decline in the professions represented by the association. Associations in decline present a particular problem for certified professionals because the value of a certification is called into question if the organization that granted it collapses and fails. (Oster, 1995)

Early warning signs that a professional society is in decline include changes in the membership profile; fewer new members joining and lower membership renewal rates. In financial terms, this results in a depletion of society reserves as budgets begin to show deficits. The decline is often exacerbated by lower participation rates in program offerings and meetings. (Bartling, 1997)

Recognizing and responding to the warning signs of decline is often difficult. In house staff in these associations is typically professional association managers supported by clerical staff. They often are not directly knowledgeable of the profession and its disciplines, and so are often unaware of the industry and economic trends that are driving change. It is the association's board members who are typically knowledgeable in the field, and in the best position to spot and identify priorities for change. This can raise political implications for the interaction of the association staff and the board, with the former often resisting change because of the heavy workload often involved in day-to-day society operations. (Baechle, Bryant, & Traband, 2003) Overcoming these obstacles in time to prevent serious damage to the organization as a result of declines and shifts requires a strong and powerful board, comprised of members who can effectively serve their roles. (Gish-Panjada, Hogan, Maronde, & Mitoff, 2002)

Options are limited for turning around an association in decline depending upon how early the decline is identified and addressed. Governance changes, altering program, financial options, and different communications options typically head the list of changes that are attempted by organizations attempting such turnarounds. (Bartling, 1997) Most such efforts begin with a major assessment or audit of program activities to determine the scale of decline, and the needed scope of change. (Glassie & Knapp, 2002) The results of such an assessment are

typically defined as strategic and operational changes in the association and its programs over a period of several years. (Cyr & Knapp, 2003)

Baldrige Management Model

Bartling (1997) describes the turnaround of a struggling membership association as requiring a potentially complete management shake-up; beginning with financial changes to "stop the bleeding" (p. 57) of deficits. He calls for a rethinking of board governance, committee structures, staffing levels, and membership growth goals. (p. 35) If necessary, the organization needs to be rescaled based on a realistic picture of capabilities and demand, rather than a nostalgic picture of what the organization was or could have been. Once stabilized, the organization can then start rebuilding to where it prefers to be; but current operations need to be brought into alignment first. (p. 31) He argues that integrity is a Program's most important product, and if integrity is being compromised, it's time for significant change of governance and management. (p. 115)

A turnaround with the necessary impact described by Bartling requires a rethinking of the entire governance and management structure and capability in a certification program. The capabilities of a certifying program can be measured and assessed using the NCCA and ISO standards described below, but an assessment of the overall governance and management capability requires a broader model not specific to the certification arena. The paramount model for such management reviews in the United States quality management industry is the criteria of the Malcolm Baldrige National Quality Award administered by the United States Department of Commerce. (Table 1)

Table 1 – Baldrige Criteria for Performance Excellence

Category	Criteria
1 Leadership	Leadership addresses how the Program's senior leaders guide the Program in setting directions and seeking future opportunities.
1.1 Organizational Leadership	This Item examines the key aspects of the Program's leadership and the roles of the Program's senior leaders, with the aim of creating and sustaining a high performance organization.
1.2 Public Responsibility and Citizenship	This Item examines how the Program fulfills its public responsibilities and encourages, supports, and practices good citizenship.
2 Strategic Planning	Strategic Planning addresses strategic and action planning, and deployment of plans. The Category stresses that customer-driven quality and operational performance excellence are key strategic issues that need to be integral parts of the Program's overall planning.
2.1 Strategy Development	This Item examines how the Program sets strategic directions and develops the Program's strategic objectives, with the aim of strengthening the Program's overall performance and competitiveness.
2.2 Strategy Deployment	This Item examines how the Program translates the Program's strategic objectives into action plans to accomplish the objectives and to enable assessment of progress relative to the Program's action plans.
3 Customer and Market Focus	Customer and Market Focus addresses how the Program seeks to understand the voices of customers and of the marketplace. The Category stresses relationships as an important part of an overall listening, learning, and performance excellence strategy. the Program's customer satisfaction and dissatisfaction results provide vital information for understanding the Program's customers and the marketplace.
3.1 Customer and Market Knowledge	This Item examines the Program's key processes for gaining knowledge about the Program's current and future customers and markets, with the aim of offering relevant products and services, understanding emerging customer requirements and expectations, and keeping pace with changing markets and marketplaces.
3.2 Customer Relationships and Satisfaction	This Item examines the Program's processes for determining customer satisfaction and building customer relationships, with the aim of acquiring new customers, retaining existing customers, and developing new opportunities.

Table 1 – Baldrige Criteria for Performance Excellence (cont.)

Category	Criteria
4 Information and Analysis	Information and Analysis is the main point within the Criteria for all key information to effectively measure performance and manage the Program, and to drive improvement of performance and competitiveness.
4.1 Measurement and Analysis of Organizational Performance	This Item examines the Program's selection, management, and use of data and information for performance measurement, in support of organizational planning and performance improvement.
4.2 Information Management	This Item examines the Program's analysis of its performance, as a basis for assessing the Program's overall organizational health. The Item serves as a central analysis point in an integrated performance measurement and management system that relies on financial and non-financial data and information.
5 Human Resource Focus	Human Resource Focus addresses key human resource practices — those directed toward creating a high performance workplace and toward developing employees to enable them and the Program to adapt to change.
5.1 Work Systems	This Item examines the Program's systems for work and job design, compensation, employee performance management, motivation, recognition, communication, and hiring, with the aim of enabling and encouraging all employees to contribute effectively and to the best of their ability.
5.2 Employee Education, Training, and Development	This Item examines the Program's work force education, training, and on-the-job reinforcement of knowledge and skills, with the aim of meeting ongoing needs of employees and a high performance workplace.
5.3 Employee Well-Being and Satisfaction	This Item examines the Program's work environment, the Program's employee support climate, and how we determine employee satisfaction, with the aim of fostering the well-being, satisfaction, and motivation of all employees, recognizing their diverse needs.
6 Process Management	Process Management is the focal point within the Criteria for all key work processes. Built into the Category are the central requirements for efficient and effective process management — effective design; a prevention orientation; linkage to suppliers and partners; operational performance; cycle time; and evaluation, continuous improvement, and organizational learning.

Table 1 – Baldrige Criteria for Performance Excellence (cont.)

Category	Criteria
6.1 Product and Service Processes	This Item examines the Program's key product and service design and delivery processes, with the aim of improving the Program's marketplace and operational performance.
6.2 Business Processes	This Item examines the Program's key supplier and partnering processes and relationships, with the aim of improving the Program's performance and the Program's suppliers' performance.
6.3 Support Processes	This Item examines the Program's key support processes, with the aim of improving the Program's overall operational performance.
7 Business Results	The Business Results Category provides a results focus that encompasses the Program's customers' evaluation of the Program's products and services, the Program's overall financial and market performance, and results of all key processes and process improvement activities.
7.1 Customer-Focused Results	This Item examines the Program's customer focused performance results, with the aim of demonstrating how well the Program has been satisfying the Program's customers and delivering product and service quality that lead to satisfaction and loyalty.
7.2 Financial and Market Results	This Item examines the Program's financial and market results, with the aim of understanding the Program's marketplace challenges and opportunities. It asks to provide levels, trends, and appropriate comparisons for key financial, market, and business indicators.
7.3 Human Resource Results	This Item examines the Program's human resource results, with the aim of demonstrating how well the Program has been creating and maintaining a positive, productive, learning, and caring work environment.
7.4 Organizational Effectiveness Results	This Item examines the Program's supplier and partner results, with the aims of demonstrating how well the Program ensures the quality, delivery, and price of externally provided goods and services and how the Program's suppliers/partners contribute to the Program's improved performance.
7.5 Organizational Effectiveness Results	This Item examines the Program's other key operational performance results, with the aim of achieving organizational effectiveness and key organizational goals.

(National Institute of Standards, 2001)

An internal self-assessment of an association, or one if its programs, can provide guidance for conducting a turnaround of an association. The Baldrige criteria are extensive, and provide insight into any working are of the association management and operation that may be contributing to the decline. With in such guidance, specific program-level improvement programs can be launched.

Accreditation of Certification Programs

For professional association certification programs, an improvement program opportunity always exists to become accredited. Much of the decline in certification programs centers on the value and credibility of the certifications provided, and a decline will be seen whenever the value of the association's certifications lessens, or the value of a competitor's certification rises. External accreditation of a certification program can often reverse this decline by reinvigorating the value of the certifications offered. (Schoon & Smith, 2000)

National Commission for Certifying Agencies

The primary institution offering certification program accreditation in the United States is the National Commission for Certifying Agencies (NCCA). The Commission assesses and accredits professional certification programs against a set of standards most recently updated in 2002. (Table 2) The NCCA operates through the National Organization for Competency Assurance (NOCA), a professional society whose members are professional societies granting professional certifications in their respective fields. Members of NOCA are professional certification programs that have achieved, or are currently seeking, NCCA accreditation.

Table 2 – NCCA Accreditation Standards

Standard statement
1. The purpose of the certification program is to conduct certification activities in a manner that upholds standards for competent practice in the profession, occupation, role, or for the use or support of a product.
2. The certification program must be structured and governed in ways that are appropriate for the profession, occupation, role, or for the use or support of a product and that ensure an appropriate level of autonomy in decision making over essential certification activities.
3. The certification board or advisory committee of the certification program must include individuals from the population being certified, as well as representation from appropriate stakeholders. For entities offering more than one certification program, a system must be in place through which all certified populations are represented on the certification board or advisory committee.
4. The certification program must have sufficient financial resources to conduct effective and thorough certification and recertification activities.
5. The certification program must have sufficient staff, consultants, and other human resources to conduct effective certification and recertification activities.
6. The certification program must establish, publish, apply, and periodically review key certification policies and procedures concerning existing and prospective certificants, such as those for determining eligibility criteria, application for certification, administering assessment instruments, establishing performance domains, appeals, confidentiality, certification statistics, discipline, and compliance with applicable laws.
7. The certification program must publish a description of the assessment instruments used to make certification decisions as well as the research methods used to ensure that the assessment instruments are valid.
8. The certification program must award certification only after the knowledge and/or skill of individual applicants have been evaluated and determined to be acceptable.
9. The certification program must maintain a list and provide verification of certified individuals.
10. The certification program must analyze, define, and publish performance domains and tasks related to the purpose of the credential, and the knowledge and/or skill associated with the performance domains and tasks, and use them to develop specifications for the assessment instruments.

Table 2 – NCCA Accreditation Standards (cont.)

Standard statement
11. The certification program must employ assessment instruments that are derived from the job/practice analysis and that are consistent with generally accepted psychometric principles.
12. The certification program must set the cut score consistent with the purpose of the credential and the established standard of competence for the profession, occupation, role, or for the use or support of a product.
13. The certification program must document the psychometric procedures used to score, interpret, and report assessment results.
14. The certification program must ensure that reported scores are sufficiently reliable for the intended purposes of the assessment instruments.
15. The certification program must demonstrate that scores from different forms of an assessment instrument assess equivalent content and that candidates are not disadvantaged for taking a form of assessment instrument that varies in difficulty from another form.
16. The certification program must develop, publish, and adhere to appropriate, standardized, and secure procedures for the administration of assessment instruments.
17. The certification program must establish and document policies and procedures for retaining all information and data required to provide evidence of validity and reliability of the assessment instruments.
18. The certification program must establish and apply policies and procedures for secure retention of assessment results and scores of all candidates.
19. The certification program must establish publish, apply, and periodically review policies and procedures for recertification.
20. The certification program must demonstrate that its recertification requirements measure or enhance the continued competence of certificants.
21. The certification program must demonstrate continued compliance to maintain accreditation.

(National Commission for Certifying Agencies, 2002)

ISO 17024: 2003 Conformity Assessment

As the use and role of professional competency certification has grown in response to the economic and employment considerations outlined above, issues related to professional certification have become important on an increasingly global scale. (Ascher, 2002) This trend has now been active for decades. (Organization for Economic Cooperation and Development, 1977) As a result, the International Standards Organization (2003) has very recently promulgated an international standard *ISO 17024:2003 Conformity assessment: General requirements for bodies operating certification of persons* that provides a set of international criteria for assessing the reliability and validity of professional certifications issues by organizations. The international standard does not yet include an accreditation process, but will within a few years. The NCCA and ISO standards are completely consistent, and it is expected that NOCA will continue to serve as the accreditation body under the ISO regime for programs in the United States.

Methodology

Stake (2000) describes the choice to conduct a case study as less a methodological decision than a selection of what will be studied within that methodology. The choice to conduct a case study most typically describes the context in which the case or cases are chosen. The techniques of analysis used within the case study form the methodological foundation for any results and conclusions drawn from the case. "As a form of research, case study is defined by interest in individual cases, not by the methods of inquiry used." (p. 435)

The cases in which interest is expressed in a study can be as simple as an individual in a setting, or as complex as the interaction of dynamic individuals in an organizational setting. Stake (1995) emphasizes that within this possible complexity, the case must deal with something specific. The case can't involve issues of why individuals behave the way they do, or how organizations function through their individual interactions. Rather, the case looks at the actual individuals or the actual organizations. Generalizing their behaviors and interactions is what a subsequent researcher attempts to do with the results of one or more cases. When such generalizations are included within the same study as the original case study, the delineation between case study and generalizing research can be less clear.

The case study itself must be built on some set of specific entities. If the set contains a single entity, we refer to the case as a single-case study. (Kennedy, 1979) The value of the case comes not from the number of entities studied, but from their specificity or boundedness. "If we are moved to study it, the case is almost certainly going to be a functioning specific." (Stake, 2000, p. 436) The study of the case – the case study – is both the process of inquiry described here, and the product of that process. In this case study it is this KAM.

Theoretical Foundations

As this case study began, little was documented regarding the goals and objectives of the QAI program its processes, nor its real outcomes. Even the descriptions of the problems being faced by the Program were mostly anecdotal. The data available for conducting this case study was in the minds of the key stakeholders; the staff. Elicitation and analysis of that data was subject to the ways in which the staff chose to participate and offer their knowledge; which in turn was subject to what they actually knew and how they interpreted what they knew.

For this reason, this case study needed to get into the heads of the subject participants, and to attempt to explain a great deal of what was going on in terms of those participants' thoughts and beliefs. Babbie (1998) describes the principal purpose of a case study as descriptive, but also acknowledges that attempts at explanation are typically acceptable in social settings. (p. 282) Such explanation would be essential to this study.

Structural Functionalism

Burrell and Morgan (1979) describe the functionalist position in modernist sociology as dominant. Management theory generally has been informed by these functional and structural positions. The relationships between the needs or imperatives of the social group and the functions and structures that emerged to meet those needs was described using the writings of Comte, Spencer, Durkheim, Pareto, Malinowski, Radcliffe-Brown, and Parsons. Each offered a perspective that saw the structure of interaction guiding and informing the functions performed, and needs satisfied, within the social network. Baert (1998, p. 37-9) summarizes three core themes of this functionalism in the twentieth century:

1. Functionalists use the stability or equilibrium of a social system to explain the persistence of social practices in that system, referring to the effects of those practices as beneficial to the social system in which they are embedded, even if unintended;

2. Functionalists presume social rationality; usually positing that apparently irrational observed actions can be made intelligible to the observer if their social function can be discovered and understood; and

3. Functionalists identify with prerequisites, a social system having needs that must be fulfilled in order for the social system to survive and thrive, or else society operating in such a way so that such needs are met. The link need not be causative.

Against this backdrop of function and structure, the postmodernist viewpoint looks inside the box at the meanings and interpretations of interactions among actors that take place within the functionalist structure.

Behaviorism to Interactionism

Poloma (1979) describes symbolic interactionism through the writing of Blumer, who built upon Mead's social psychology. Ritzer (1991) also traces Mead to Blumer, but points out facets of Mead's thinking, particularly with respect to psychological behaviorism, from which one can argue that Mead was investigating an arena that led away from interactionism; placing Blumer in more of an originating position in the field. (p. 189-190)

Mead looked at an interaction of the individual and the social in a synthesis in which he placed the role of the act as central. Hewitt (1994) defined the act as the smallest meaningful unit of conduct that can be extracted from human behavior. (p. 66) Going well beyond behaviorism, Mead took the act to be the primitive unit for analysis rather than an emergent property of behaviorist thinking. (Ritzer, 1991) The act, for Mead, was constituted through four

stages that interrelated; not linearly, but dynamically. The first stage – impulse – involves the sensation of a need and the various natural impulses to satisfy that need. Humans are set apart from less conscious or unconscious animals in that various cognitive states will typically mediate the impulse and its satisfaction. Mead's language was highly philosophical, much denser in tone: "All perception involves an immediate sensuous stimulation and an attitude toward this stimulation which is that of the reaction of the individual to the stimulation." (Mead, 1938, p. 3) His concept of attitude toward the response included the internal imagery generated by the response; a kind of built in feedback loop.

Such mediation includes perception, Mead's second stage of the act, through which the individual seeks alternative solutions to satisfy the impulse. The perceptions of the actor will include both external stimuli in the environment, but also their own thinking and awareness of such perceptions. Mead emphasized the selectivity of the perception itself, not just its sense-based characteristics. He described senses as important preconditions to perceptions, but limited their role to the initiation of the perceptual stage. (Mead, 1938, p. 8-9) Individuals choose what to perceive, and the level to which things are perceived, through a complex process that involves memory and the prioritization of need. Perceiving the details of the impulse will always involve an interaction of both the actor, and the environment. The process takes time, with the effect produced in the individual – the perception – occurring later that the sensed disturbance or original impulse that might have triggered the perception in the first place.

Mead (1938) raised the question as to why we perceive what we do in the world given the enormous volume of actual sensory input available to act as impulses. He attributed two different attitudes toward perceptual objects: 1) immediate experience, where actual contact and proximity bring the object to our awareness, and 2) reflective analysis, where we resolve sensory

objects into their significant and noticeable features based on features we find culturally or socially significant. Such significance will extend far beyond physical characteristics. (p. 14) It is this socio-cultural aspect of perception that will play an important role in creating social acts.

The third stage of the act – manipulation – affords the individual the opportunity to pause and reflect on the act. Whether the manipulation is of physical objects in the environment, or thoughts and memories in cognition, manipulation injects the temporal delay seen as important in Mead for differentiating human from nonhuman acts. It is through such pause that a diversity of alternative directions for the act come about; eliminating reliance on simple instinctive response. (Ritzer, 1991, p. 195) Mead described the importance of an assumption of knowing a perceptual object in order to be able to manipulate it, mentally or physically. Identifying the object, and adjusting attitudes towards it, is itself a form of conduct that mediates part of the act of which such conduct forms the manipulative stage. Past and present awareness of one's knowledge or awareness becomes a distinct field of experience separate, yet connected, to the physical or worldly reality of the driving act. (Mead, 1938, p. 16) Importantly, in so acting, we cease to act on an object in the real or external world. Instead, we manipulate our knowledge and attitudes about the objects in that world. Objects take on a host of secondary qualities not readily available to the sensory world alone. (Mead, 1938, p. 19-21)

The fourth and last stage of the act – consummation – involves carrying out one or more of those possible alternative conclusions to the act. (Ritzer, 1991, p. 196) Manipulation enables multiple possible consummation scenarios. Mead describes consummation as collapsing the manipulated possibilities into an external reality. (Mead, 1938, p. 24)

While the idea of the act explored the stimulus to response path that occurs within an individual, the act must involve two or more actors to be considered a social act. The gesture, or

outward manifestation of the social act, constitutes the building block of the social process for Mead: “gestures are, then, early stages in the overt social act to which other forms involved in the same act respond.” (1932, p. 188) While many species can interact through instinctive gestures, only humans have the ability to interact through significant gestures. Ritzer (1991) describes Mead’s significant gesture as one that requires thought on the part of the actor before a reaction can be expected to take place. (p. 197)

Mead saw the development of language, of vocal gestures, as a true differentiating event in the development of social interaction and social structure. “It has been the vocal gesture that has preeminently provided the medium of social organization in human society.” (Mead, 1932, p. 188) Language allows symbols used by one individual to evoke predictable meanings and responses in other individuals in ways that non-vocal gestures can not. Physical gestures, while potentially evocative, are difficult to depend upon for significant communication during complex interactions. Ritzer describes Mead’s position as taking language to be the most efficient, pragmatic, significant symbol system available for the building of complex social relationships, the interactions of which form the basis for modern and postmodern societies. (p. 198)

Even the act without a social component, the introspective gesture, is made more efficient with language. The use of significant symbols, within ourselves and amongst each other, enables the complex forms of social interaction necessary to allow our complex social organizations to emerge. “Thinking involves talking to oneself.” (Ritzer, 1991, p. 199) Individuals can delay their response to stimuli while they carry out conversations with themselves regarding the meaning and their interpretation of the stimulus. This internal conversation embodies Mead’s manipulation stage of the act. Ritzer points out that, in addition to simply being able to reflect on and respond to stimuli, humans actually pick out which stimuli to pay attention to and react

to. They aren't limited to instinctive response, even being able to ignore stimuli that they decide have little or no meaning for them. (p. 201)

Ritzer describes meaning as arising not just out of the reflection and thoughts of the individual, but from the relationship between the gestures of the individual and the response to those gestures evoke from another individual or group in the social act. "It is the adjustive response of the second organism that gives meaning to the gesture of the first organism." (Ritzer, 1991, p. 201) The mind, the collection of intended and unintended meanings, is not in the head; it is a social phenomenon. Ritzer describes the mind as that which is able to respond to the world and put forth organized responses to stimuli that it chooses to see meaning in.

Ritzer (1991) describes Mead's notion of self as an ability to take oneself as both subject and object of thought. (p. 202) It is only though communicative social processes that one's self can develop; seeing oneself as the target of communication. Once developed, the self is established and can exist independent of social interactions. But in social interactions, the self makes it possible to monitor our own interactions with others; allowing our own gestures to become stimuli to which we assign meaning and react with additional gestures. We become able to observe the social act objectively because we can place ourselves into the social arena as one of many actors.

Able to see ourselves as objects, we're able to identify actors as other than ourselves. The generalized other of Mead allows us to abstract from our own inner experiences to view gestures from outside of the social exchange. To be a self, and for there to be others, we must exist in a social community that shares enough common values and meanings to be able to interact through gestures. The concept of other would make no sense unless we could presuppose at least rudimentary shared meanings for common gestures. We recognize

differences among each other, but come to depend on common similarities. With differences, "people have multiple generalized others, and, as a result, multiple selves." (Ritzer, 1991, p. 205)

Organization as Interaction

Preceding both mind and self, because of its prerequisite formative role in both, individuals interacting in an organization is the on-going social process of acts, gestures, significant symbols, and mind exchanges among self and others. Mead sees society as the set of organized responses that are taken over and carried forward by individuals. "Individuals carry society around with them." (Ritzer, 1991, p. 207) Institutions form within society around common meanings and responses. Mead views social institutions as giving form to interactions among individuals in which their interpretation of meanings give rise to gestures that evoke related responses and actions in others. Society emerges through such interaction, and meaning mediates between stimuli and responses.

Symbolic Interactionism

Symbolic interactionism goes beyond the functional structure of society to look at the meanings associated with interactions within such a society by those individuals who make up that society. As described by Mead, it looks at the affects such meanings play in determining those interactions; such that the way in which individuals interact is at least partly determined by those interactions themselves; and the history of meanings that those individuals bring to those interactions. It brings an increasingly subjective outlook to what is otherwise describable more or less objectively.

Rose (1962) sets out symbolic interactionism based on five assumptions regarding the distinctive characteristics of humanity, drawing upon Mead's interpretation of the implications of the social act. The first assumption is that we live in a symbolic as well as physical world.

(p. 5) Rose defines symbol as a stimulus with a learned meaning. When we respond, we respond to the meaning of the symbol, not to the sensory stimulus of the symbol itself. We respond to what the symbol means, which can vary from individual to individual, and context to context. Because we learn most symbols through communication, we can expect to have relatively shared meanings for many symbols commonly communicated amongst ourselves.

Rose's second assumption describing symbolic interactionism takes advantage of this expected commonality of meanings. Through symbols, it is assumed that we can affect the stimuli-response pattern of others. (p. 7) In other words, we communicate using symbols as much for the way we presume others will assign meaning to them as in how we ourselves assign such meaning.

For such communication to be meaningful, we must adopt Mead's role of other in order to anticipate the possible meanings and responses of others. Such communication will utilize significant symbols; symbols which need not be understood in the same way by others that receive them. As a result, we can not actually control the response of others, only have an affect on that response. The communication is, then, an example of Mead's social act where both the communicator and the recipient must negotiate the shared meaning assigned to each symbol exchanged. The meaning is not in the sound of the words, but in each actor's interpretation of any evoked images, that brings about the socially constructed meaning.

Rose's third assumption is that through this on-going exchange of symbols, we can learn a large number of meanings and values from those with which we exchange symbols in social interactions. (p. 9) In this way, typical adult behavior in society can be said to have been learned from previous accumulated social interactions rather than through any form of natural trial and error interactions. This collection of accumulated meanings and values will constitute the

culture within which social interactions take place; increasing our ability to predict others' meanings for symbols we might choose to use in our interactions.

Charon (1995) asserts that as individuals, we depend upon society for our symbols. Indeed, as individuals we would be without a symbolic life if we were not embedded in our symbol rich culture. "Complex human life demands and depends on human symbolic life." (p. 36) Through this shared culture, we become able to predict the actions and behaviors of others. Our predictions are based on our own expectations for behaviors that would be implied by the common meanings and values that we expect others with whom we interact to share. When they do not, we adjust our expectations for future interactions..

Rose's fourth assumption is that these symbols do not exist in isolation, but will accumulate into clusters and packages of symbols and assumptions upon which we will rely in our own communication and interaction. (p. 10) Among these clusters of meanings, roles emerge as collections of shared meanings that govern specific types of interactions in specific types of settings. Structures emerge as clusters of meaning that define relationships among actors that take part in socially meaningful interactions. These roles and structures serve as the observable components of the modernist functional-structural view of society where internal meanings are unacknowledged or unobserved.

The final of Rose's five assumptions is that thinking is the process by which symbolic alternatives are considered and evaluated according to the individual's meanings and presumed meanings of others. (p. 12) Action is taken as a result of these evaluations, and the meanings that form the priorities in making the choice of action. The first four assumptions for the basic for interactionist communication; and this fifth assumption enables it to take place.

Goffman extended symbolic interactionism to encompass the friction that occurs in each actor when there are differences between what people expect the actor to do and what the actor may actually want to do. Ritzer (1991) describes Goffman as focused on dramaturgy, or the series of dramatic performances each actor plays throughout life as they enact their own resolution to this friction. (p. 216) Dramaturgy defines the self not within the actor, but in the played out interaction between actor and each social situation.

Although an interactionist, Goffman recognized that many dramaturgical roles were preestablished based on societal expectations and norms. We don't completely choose our selves, rather, we cast ourselves into roles that are already defined and scripted by our culture and society. We may alter the characters, but only within the limits of how the roles are defined. Applying symbolic interactionism to this case study is, in part, based on the assumption that certain professional or staff roles in which we cast ourselves are already preexisting. The implementation of structural models in an office setting, as well as the recognition of the interactionist responses of individuals in such a setting, rests on the premise that certain roles are already established, and that actors in the setting will vary their performances from stereotyped scripts in moderate and predictable ways. Without such an assumption, no practical basis would exist for applying these concepts.

Participatory Action Research

The perspective of symbolic interactionism informs a perspective for studying and modeling the interaction of processes and actors in an organizational environment. If that organizational environment relies heavily on undefined or poorly defined processes and procedures, understanding the symbolism that participants in the organization attach to their actions and interactions will be central to understanding those actions and interactions. Even

more so, to the extent that individual perception of symbolic meaning is attached to actions and procedures, then affecting those underlying perceptions will be critical to effecting change in the organizational setting.

This study adopted a participative action research approach in order to address the need to incorporate many of these symbolic-interactionist perspectives into the study plan. The participative nature of the study would help take advantage of, and impact, the perceptions and attitudes of the staff in the study setting. Kemmis and McTaggart (2000) describe several key characteristics of participatory action research (see Table 3), several of which are significant in a symbolic-interactionist setting.

Table 3 – Key Features of Participatory Action Research

Features
1. Participatory action research is a social process.
2. Participatory action research is participatory.
3. Participatory action research is practical and collaborative.
4. Participatory action research is emancipatory.
5. Participatory action research is critical.
6. Participatory action research is recursive.
7. Participatory action research aims to transform both theory and practice.

(Kemmis & McTaggart, 2000, p. 597-598)

The view of action research as a social process is important when one considers that a great deal of the change to be affected in the organizational setting comes about by altering the interpretation stakeholders place on the symbols being manipulated and managed in the organization's setting and processes. The recursive nature of the research allows participants to

continue implementing change long after the external research has left. The dual emphasis on theory and practice supports participants investing themselves in change because they feel empowered to alter practice using grounded theory. (Winter, 1987)

Together, these features define a marked contrast against the more typical consulting engagement where an outside expert comes in, looks around, and then pronounces what changes are necessary. From the symbolic-interactionist perspective, such an approach can not succeed precisely because the critical perceptual construct that drive the system are invisible to the outsider. Any solutions designed without such perceptual awareness can not possibly take all systems factors into account, and so will be of doubtful value to the organization. Participatory action research provided a path for conducting systematic work in the study setting while maximizing the knowledge and impact of local stakeholders.

Study Setting

Miles and Huberman (1994) emphasize the importance of clearly defining the boundaries of the territory to be covered by a case study. Their definition of case very specifically emphasizes "a bounded context." (p. 25) The dimensions they articulate as important in such a definition include combinations of functional, spatial, and temporal contexts. Additionally, they assert that a rigorous case study definition needs to articulate whether the case is being viewed monolithically or dynamically; whether it is expected to remain stable throughout the study period, or is expected to undergo change. A valid case study can include change, but should be careful to assure that the change doesn't alter the bounded context of the case itself. The output can be a changed case, but shouldn't be a different case. This limits changes within the study to those that keep the case recognizable against the original case definition.

The case explored in this KAM was the professional certification program at the Quality Assurance Institute (QAI) in Orlando, Florida. QAI has offered professional certification to software quality professionals since 1990 and, over its first ten years, developed processes and service procedures in an *ad hoc* manner. By late 2000, QAI was finding that its service profile and operating capacity were inadequate to meet growing demand for its professional certification services. The program was actually at risk of collapsing and failing under the pressure of its own inadequacies.

In June 2001, I entered QAI on a part time basis to work on resolving this problem, with little guidance offered on the approach to take, or the specific outcomes to be achieved. I was given a relatively free hand, and asked to complete my work within two years. This two-year engagement constitutes the case being studied in this KAM.

In terms of the context dimensions offered by Miles and Huberman; this case was bounded:

1. *Functionally*. The QAI Certification Program would be studied independently of other QAI functions performed in the same office; namely membership services, conference services, education services, and research services.

2. *Spatially*. The case included all operations run directly out of the QAI office in Orlando under the direct control of the QAI Director of Certification. This included all certification functions for North and South America, but only certain coordinative functions for the rest of the world. The QAI India and QAI Middle East affiliates operating the certification program functions in Asia-Australia and Europe-Africa were included only as external stakeholders. Internal operations within these affiliates were not studied.

3. *Temporally*. The study period would run from June 2001 through May 2003.

The use of this engagement as a case study was done with the knowledge and support of the QAI management team. Pseudonyms are used throughout this paper to protect the privacy of individual participants within the case who, because of the job-related nature of their involvement, did not have the option to consent (or not consent) to their involvement.

Organizational Self-Assessment

The research study was initiated by assisting QAI staff and stakeholders in conducting a set of broad-base self-assessments. Focusing non-hierarchic organizations such as QAI, Shein (1989) described a variety of circumstances where such broad reviews of organizational activities can be helpful (Table 4). At the beginning of the study, QAI needed major help in all five areas delineated by Shein.

Table 4 – Helping Virtual or Non-hierarchical Network Organizations

1. Help in the initial design and implementation of information technology, systems, and processes.
2. Help at the supplier/vendor/customer interface.
3. Help in the process of designing and consummating mergers, acquisitions, joint ventures, and strategic alliances.
4. Help with new kinds of workforces and employment contracts.
5. Help at inter-organizational interfaces both in the public and private sector.

(Shein, 1989, p. 15-17)

In particular, the QAI Certification Program completely lacked systems and processes, complained of its poor customer facing interfaces, was dealing with very difficult contract coordination issues with its Middle East and India affiliates, employed both permanent and

temporary clerical staff, and struggled to interact with the network of local Chapters across the international QAI network of membership organization.

The self-assessment at the start of the study was conducted using an instrument (Drucker, 1999) designed for self-assessing large nonprofit organizations, using an approach defined by Stern (1999). The approach uses a set of five core questions (Table 5) intended to explore the organization and its competencies under the broadest possible framework; using organizational mission as an anchor for exploring improvement opportunities.

Table 5 – Drucker Foundation Self-Assessment Questions

1. What is our mission?
2. Who is our customer?
3. What does the customer value?
4. What are our results?
5. What is our plan?

(Drucker, 1999; Stern, 1999)

This approach specifically avoids trying to prescribe changes into the environment, rather allowing organizational concerns to support problem and solution emergence. I was involved in initially piloting earlier versions of this instrument and process in the early 1990s (Biehl, 1995), and so was familiar with its deployment and use.

Action Theory & Training

The redevelopment work being done at QAI was largely carried out by QAI staff and professional volunteers working under my facilitation and guidance. I worked with senior management to establish direction based upon my research. The process was largely *ad hoc* and

unmanaged. Understanding and analyzing my role, and the various actions we took together, can be described best using a methodological model based on participatory action research (Kemmis & McTaggart, 2000). The specific action research model that was used to understand activities in this case was Bruce and Wyman's (1998) Action Theory & Training model (Table 6).

Table 6 – Two-Phase AT&R Cycle (Bruce & Wyman, 1998)

Phase	AT&R Stage
Research	1. Orientation
	2. Contract setting
	3. Reconnaissance
	4. Problem & opportunity identification
	5. Aspirations
	6. Action options
Action	7. Experimentation
	8. Experiment results analysis
	9. Program design
	10. Implementation
	11. Program evaluation
	12. Re-cycle

Bruce and Wyman (1998) describe AT&R as being based on two different perspectives, both of which were highly relevant to this study's objectives. First, AT&R emphasizes the self-reeducation of the stakeholders in the study. Second, AT&R emphasizes a consultative approach to helping people implement their own changes rather than simply directing change at or over those stakeholders.

The central themes of such an approach included helping members of the organization develop new knowledge of their issues, problems, and opportunities along with a new set of internalized values to focus attention on the changing needs of their customers. The combination of increased problem awareness and refocused customer values allows stakeholders to identify new ways to perform their processes and procedures. "Self-reeducation is not learning just any change. It is learning to accept new values according to the new knowledge gained." (p. 16-17)

The AT&R model provides the structure for the Results chapter below.

Kotter's (1996) Eight-Stage Change Process

Whether ultimately successful or unsuccessful, an outcome of this case study was to be organizational and program change. To describe such change across the case, this KAM uses Kotter's (1996) staged change process (Table 7) as a theoretical backdrop against which actions and outcomes can be compared. As a conceptual model, Kotter's stages provide a framework for understanding what happened in a change process, even if the conceptual model was not part of the planning of such change. It informs analysis, and can be used to better understand results.

Table 7 – Kotter's (1996) Eight-Stage Change Process

1. Establishing a sense of urgency.
2. Creating the guiding coalition.
3. Developing a vision and strategy.
4. Communicating the change vision.
5. Empowering broad-based action.
6. Generating short-term wins.
7. Consolidating gains and producing more change.
8. Anchoring new approaches in the culture.

As a conceptual framework, such a model can inform and guide an understanding of successful change, or inform and diagnose an understanding of unsuccessful change. This case presented elements of both success and failure. The Kotter change model provides the structure for the Conclusion chapter below.

Validity Challenges

Pragmatic Bias

As a socially-based approach to understanding the interactions of individuals in various contexts, Huber (1973a) argues that symbolic interactionism contains inherent biases that are inherent in the methodology's underlying pragmatism. She argues that pragmatism looks for the validity or truth of propositions in their usefulness of outcome rather than they logical deducibility from previous experience and theory. Knowledge requires experience to identify the meaning associated with actions so that their inherent correctness or usefulness can be established. "What counts is not the origin of a proposition but its outcome." (p. 276)

With a de-emphasis of origins, Huber argues that the sociologist is forced to conduct research during which logical constructs and social conventions are allowed to emerge from the interactions actually observed and inspected in the field. Symbolic interactionism, then, is a tradition whose "epistemology … makes it reflect the social biases of the researcher and of the people whose behavior is observed." (p. 275) If observation need not be pre-grounded in theory, then any outcome will be valid. Without theoretical grounding, researchers will see what they are expecting to see based on their own views of the social world and the interactions that they choose to look for in their observations. Such bias will not be conscious, but Huber argues that they are inevitable. As a result, the symbolic interactionist position that "truth is the emerging

consensus of the participants in the interacting situation" (p. 276) will be self-limited by the social biases of the researcher who decides what will be observed.

Blumer (1973) counters Huber's argument by stating, first that all sociological methodologies are subject to the researcher bias that Huber describes, and second, that she is incorrect in her assertion that symbolic interactionists rely exclusively on observation over theory in conducting research. No researcher begins with a clean or blank slate. Every investigation is naturally grounded in prior theory, particularly functionalist theory about how individuals and groups interact. In order to observe a group or interaction, the sociologist must first define the group as a group, or the interaction as an interaction. There is room for theoretical bias here from any discipline. "The likelihood of introducing unwitting bias is much less when the problem is developed through a close, flexible and reflective examination of the empirical world than when the problem is formed by using a model not derived through such intimate, empirical examination." (p. 798) Close scrutiny by the observer will control for any introduced bias. Huber (1973b) counter-argues that "if the scrutiny is not sufficiently intense and flexible, the researcher presumably remains captive to prior images." (p. 800)

The continuing debate illustrates a touch point between functionalism as a grounding discipline, and interactionism as an exploratory or emergent discipline. In applying symbolic analysis to the case of the QAI Certification Program, the existing base of functionalist knowledge regarding the certification industry and its interactions provided in the previous literature chapter, as well as the standards and guidelines available in the public sector for accrediting certification programs, will serve as Huber's grounding theory, allowing for Blumer's observational methods to seek and identify the role of meanings in the expected and observed interactions.

Single Case Bias

Kennedy (1979) has addressed the issue of generalizing from single-case studies; describing aspects of generalizing from disaggregated multi-case studies, particularly when data collected are qualitative or descriptive. In such situations, specific treatments can be difficult to define or isolate, and confounding influences or circumstances can make drawing conclusions from case data problematic. "What seems to be needed before single-case studies will be widely accepted is a set of rules for drawing inferences about the generality of findings for a case study." (p. 663)

When looking at generalizing from single-case studies that have been replicated, Kennedy proposes four criteria for sample attributes that increase the reasonableness of generalizing assertions: a) that there be a wide range of attributes across the sample cases, b) that there be many common attributes across the sample cases, c) that there be few unique attributes in the sample cases, and d) that the attributes themselves be highly relevant to the issues being generalized. (p. 666-667)

In moving from the replicated single-case study to the non-replicated study such as this one, Kennedy acknowledges the limitations to generalization based on the above rules. These limitations, though, don't preclude the analysis necessary to generalize results. The relevant common and unique aspects of a single-case can be captured. The current researcher is simply not in a position to generalize because the extent to which each attribute is common or unique can not be known until the case is juxtaposed against another case by some future reader of this study. The generalizing of this study will be a judgment of the receiver of this information and their determination of the extent to which it applies to their own situation. This researcher can

only produce and share information from the case with an eye toward the rules by which future recipients will evaluate these findings.

Results

This chapter presents the results of my two-year QAI intervention as a single-case presentation (Miles & Huberman, 1994), focused on three specific presentation dimensions: a) a quick chronological review, a) a methodological review, and b) a perspective review by stakeholder.

Project Chronology

The first project year was spent predominantly in the Research Phase, although presentation of this case illustrates that actual field engagements don't necessarily follow methodology models linearly. The second project year was spent predominantly in the Action Phase, as the team worked to implement ideas generated and identified over the course of the first year.

The single most significant idea generated during the first year was the opportunity to improve processes and marketplace credibility through formal program accreditation by the National Commission for Certifying Agencies (NCCA). (Browning, Bugbee, & Mullins; 1996) If accreditation were gained, the QAI program would be the first of its kind in the software industry. Other major changes included test automation, a reorganization of the Board and governance processes, shifts in staffing assignments, and automation of processes on the World Wide Web. Little in the program was recognizable at the end of the two years.

July-December 2001

The engagement started mid-year in 2001, and the first few months emphasized fact-finding and goal-setting. Initial results supported medium-term goal setting for the entire two-year engagement, as well as several short-term "quick hit" operational improvement

opportunities. Several of the "quick hit" changes went live on a new Program web site in early September while analysis and planning against longer-term goals.

The 9/11 terrorist attacks causes a significant disruption of engagement activities. One of our certification board members, Anna Allison, died as a passenger on American Airlines flight 11 when it crashed into the World Trade Center north tower that morning. Certification examinations scheduled for mid-September needed to be rescheduled, and the program staff was completely diverted from this engagement for about a month.

As normal activity resumed by October, several medium-term and long-term actions plans began to emerge and solidify. By year-end, several parallel improvement efforts were underway, including further web-based automation of key processes that had begun as "quick hit" improvements in September, and several organizational changes that would be needed for on-going changes as the engagement continued.

January-June 2002

Moving into the new year of 2002 allowed several shifts in change-related activity to occur across the Program. While still dealing with the tactical feedback and resistance that had arisen to the major first round of changes in late 2001, overall program emphasis shifted toward longer-term institutional changes that would begin to enable accreditation-driven improvements.

Much of the early part of the year was spent expanding and improving the coverage of information and materials on the program web site. Many of the site improvements were made in response to on-going program feedback, and served as an avenue for publishing information and information that was identified as important through the customer support initiatives.

Another key element in the first half of 2002 was the automation of examination grading. Such automation would be necessary in order to support many other examination-related

changes that would also be occurring during 2002. In the spring, we implemented a Scantron automated grading system that would run in parallel with the program's manual grading through the summer examination periods. Full automatic grading was targeted for the second half of 2002 after the six-month trial period.

Also during the spring, a new set of host site and proctor materials were developed for roll-out with the summer examinations. Each would be piloted through the summer, with the formal implementation scheduled for later in 2002.

July-December 2002

The second half of 2002 saw the formal implementation of the two big Program changes that had been initiated in the first half of the year; namely the new Scantron automated grading system, and the more formalized hosting and proctoring procedures. Each of these changes helped improve the satisfaction of gaps in the accreditation assessment, and allowed for the program to move into a phase of actually changing and expanding the examination processes and procedures.

With the program governance and committee structure emerging throughout the year, the Program was ready to run its first item writing workshop in October. The workshop involved 15 people, and ran concurrently with QAI's annual software testing conference in Orlando. This workshop accomplished very little in terms of expanding or revising the assessment item inventory, but accomplished the testing of procedures necessary for future workshops that would quickly impact item quantity and quality.

As year-end approached, we devoted time to completely reassessing the organizational and program processes. The timing of the annual NOCA conference in Tucson in November provided an opportunity to revisit our program changes in terms of the newly published NCCA

standards that were being launched at that conference. Such an assessment didn't present very positive outcomes, and we went into 2003 with a list of remaining concerns that needed to be addressed seriously in order to have any hope of ever obtaining program accreditation.

January-May 2003

The first half of 2003 was spent attacking the two major areas that still seemed to be stumbling blocks to program accreditation. Examination grading was nagging program problem, and the resistance coming from the owner of the Institute started to create insurmountable problems in the initiative. Likewise, owner resistance increased dramatically as resources were allocated to improving the test item bank. Changes that required the allocation of human and financial resources, particularly those that might limit application revenue, increasingly came under the scrutiny and resistance of the owners.

May 2003 saw the end of my two-year engagement, and a disruption of the entire program by the end of the year. The owner resistance turned dramatic over the summer, and many organizational and program changes that had begun in late 2002 and into early 2003 had to be abandoned. Two staff members were laid off by the owners during late summer, and the Institute CEO was terminated in January. The certification program has reduced to a core maintenance pattern, using the 1½ remaining staff members, and some personal guidance from the owner.

There was a certain irony to breaking up the program in May. April had seen the final publication of the ISO 17024 international standard for accrediting certification programs (International Standards Organization, 2003), and customers were suddenly asking when the QAI program would be able to seek and obtain certification. Had this change effort been successful, ISO certification would have been a simple matter of translating our NCCA

applications into ISO terminology. QAI would have quickly been certified to the ISO standard; having had a two-year head start over any competitor organizations.

Research Phase

After this high-level chronological view of the engagement, this section now begins describing the case study in methodological terms using the framework provided by Bruce and Wyman (1998); beginning here with the Research Phase, and followed by the Action Phase.

Orientation Stage

Bruce and Wyman describe the project orientation stage as a "time for raising questions." (p. 37) Early in the engagement, as trust is being developed between the researcher and the participating stakeholders, almost everything about the engagement seems to be orienting. Later, as trust forms, orientation shifts into the actual field or discipline being impacts, as the researcher digs deeper into the domain. This orientation is two-sided; as the researcher learns the discipline, the participatory roles are emerging and defining for the rest of the organizational stakeholders. Orientation actually occurs in cycles throughout the project, each cycle moving further into the organization and its processes.

The initial orientation stage of this engagement began on June 1, 2001 as an informal one-month assessment and fact-finding review of program processes and procedures in the Orlando, Florida, office of QAI. This first month of activity was run as a stand-alone project, the QAI Certification Program Evaluation & Assessment Project, on which all QAI staff participated.

The research objectives during that first month were:

1. To solicit input from broad range of Program and Institute related participants.

2. To benchmark the Program against a variety of other certification programs, particularly that of the American Society for Quality (ASQ), the Program's principal competitor.

3. To conduct a stakeholder analysis using *The Drucker Foundation Self-Assessment Tool* offered through the Peter F. Drucker Foundation for Nonprofit Management.

4. To conduct an overall program gap analysis against the *Standards for the Accreditation of Certification Programs* promulgated by the National Organization for Competency Assurance.

5. To conduct Program management review using the Baldrige *Criteria for Performance Excellence* (business/education hybrid) as a guiding framework.

The deliverables of the kick-off assessment included: a) project plan and status reports, b) a formal *Evaluation & Assessment Report*, c) a *pro forma* Strategic Plan for 2001-2005, d) a *pro forma* Program Process Guide, and e) various project working papers & notes.

One risk facing the kick-off assessment was timing. The project was time-boxed at one month and there was a moderate risk that the goals and objectives outlined above could not be met within such a tight timeframe. To mitigate that risk progress and status were constantly monitored against plan, and adjustments were made as needed during mid-month, and participants – particularly Board members to whom materials had to be mailed - were reminded of the tight timeframe whenever input was solicited in order to reduce the cycle-time required by each project activity.

A center-piece of the orientation activities was conducting a self-assessment of overall Program strategic capabilities using the Drucker (1999) self-assessment assessment instrument. The Program management team and board members all participated. That activity allowed a

group consensus to emerge regarding the strategic challenges facing the Program. (Table 8) It was to these seven challenges that the entire group agreed to address themselves.

Table 8 – What are our challenges?

Challenges Identified
1. As the economy declines, the need for certification increases.
2. Increased need to get certified because employers are now expecting it.
3. Competition is increasing, putting pressure on us to be faster on our feet.
4. Need to respond to rapidly changing new technologies
5. Competitor organizations are offering similar certification programs.
6. Although basic QA concepts aren't changing, our tools and methods are.
7. Availability of information and visibility is increasing across our profession.

(Drucker, 1999, Worksheet 2)

Contract Setting Stage

Engagement contracting is as much a psychological activity as a legal one. (Bruce & Wyman, 1998, p. 63). Through effective and specific communication of goals and objectives, everyone becomes oriented to the same movement and direction; particularly important in participatory research precisely because much of the intended change will emerge from unstructured and opportunistic change.

The scope of engagement agreed to by the participation team included:

1. All governance activities, including interaction with the Institute.

2. All job analysis, body of knowledge, and assessment instrument development activities.

3. All certification candidate activities from application through re-certification.

4. All marketplace and customer relationship activities.

5. All Program staff and vendor roles and responsibilities.

6. All infrastructure and technology support considerations and activities.

To address this scope, it would be critical that the engagement address certain key success factors:

1. Addressing marketplace credibility threats proactively.

2. Identifying operational improvements to support current Program workload.

3. Maintaining scalability of the Program for future scope and volume growth.

4. Balancing of competencies and capacities with technology and outsourcing.

Reconnaissance Stage

With trust built through orientation, and contracting accomplished in the initial assessment activities, the reconnaissance stage provides for deeper and further exploration of the issues requiring change, and some estimating of the scale of change required to fulfill engagement goals. (Bruce & Wyman, 1998, p. 98) As a participatory effort, it was important that the reconnaissance be conducted by the entire team. Individual stakeholders within the Program would need to increase their own personal skills and comfort in the discipline if the changes anticipated were to be expected to embed themselves in the culture of the office and Program. The design of change needed to be the training activity from which the change actually emerged.

As part of reconnaissance, we reviewed the policies and procedures in the program, as they existed at startup in June 2001, against the 21 standards in the *NCCA Standards for the Accreditation of Certification Programs* (National Commission for Certifying Agencies, 2001), and the 19 criteria in the *Baldrige National Quality Award: 2001 Criteria for Performance*

Excellence (National Institutes of Standards, 2001). Each standard or criteria clause provided a means for assessment of current program activities against a benchmarked model acceptable to QAI management. Compliance with each statement was ranked as *strong, acceptable,* or *weak.* The results are discussed below, and are summarized in Table 9.

Table 9 – Summary of Standards Compliance Ratings

Compliance	NCCA	Baldrige
Strong	3	0
Acceptable	9	4
Weak	9	15

NCCA Comparative Assessment

The comparative assessment against the NCCA standards was most informative precisely because the standards directly addressed certification programs like this one. Generally, findings were lower than expected by management, and several of the gaps identified were considerably larger than anticipated. Weaknesses are discussed below, and all assessment results are listed in Table 10.

Table 10 – NCCA Compliance Assessment

Standards statement	Compliance
1. … upholds standards for competent practice in the profession, occupation, role, or for the use or support of a product.	Strong
2. … structured and governed in ways that are appropriate for the profession, … ensure an appropriate level of autonomy …	Acceptable
3. … advisory committee … must include individuals from the population being certified, … appropriate stakeholders.	Weak
4. … sufficient financial resources to conduct effective and thorough certification and recertification activities.	Acceptable
5. … sufficient staff, consultants, and other human resources to conduct effective certification and recertification activities.	Acceptable
6. … establish, publish, apply, and periodically review key certification policies and procedures concerning … certificants	Acceptable
7. … publish a description of the assessment instruments … as well as the research methods … that the assessment instruments are valid.	Weak
8. … certification only after the knowledge and/or skill of individual applicants have been evaluated and determined to be acceptable.	Strong
9. … maintain a list and provide verification of certified individuals.	Acceptable
10. … publish performance domains …related to the purpose … and use them to develop specifications for the assessment instruments.	Weak
11. … assessment instruments … that are consistent with generally accepted psychometric principles.	Weak
12. … set the cut score consistent with the purpose of the credential and the established standard of competence for the profession, …	Acceptable
13. … document the psychometric procedures used to score, interpret, and report assessment results.	Weak
14. … ensure that reported scores are sufficiently reliable for the intended purposes of the assessment instruments.	Acceptable
15. … demonstrate that scores from different forms of an assessment instrument assess equivalent content …	Weak
16. … develop, publish, and adhere to appropriate, standardized, and secure procedures for the administration of assessment instruments.	Acceptable
17. … document policies and procedures for retaining all information and data required to provide evidence of validity and reliability …	Weak
18. … establish and apply policies and procedures for secure retention of assessment results and scores of all candidates.	Strong
19. … establish publish, apply, and periodically review policies and procedures for recertification.	Acceptable
20. … demonstrate that its recertification requirements measure or enhance the continued competence of certificants.	Weak
21. … demonstrate continued compliance to maintain accreditation.	Weak

Note: Complete standard text is in Table 2.

Several of the weaknesses in the assessment were related to the structure of the Certification Board in NCCA standard #3. The board membership at the time was small, and was limited to individuals invited after already being involved with the Institute in some way. No process had been defined for mapping board membership to marketplace constituencies and actively recruiting members from within those constituencies. The default process of establishing a separate board for each new certification would not be sustainable as anticipated new certification designations were to be added in upcoming years.

Weaknesses were also identified in the program assessment mechanisms (NCCA #7). Too little documentation existed from the initial rounds that created the body of knowledge and examination items for current certification assessments, making the required on-going update and maintenance of those deliverables impossible. Existing examination items lacked documentation to trace correct answers and distracters to confirmation points in the literature.

Regarding published performance domains (NCCA #10), each current certification had an associated body of knowledge, but they were somewhat dated; particularly the CQA designation. There was currently only one assessment instrument for each certification at the time of the assessment, and there was no formal specification of requirement for either one. Examination definition was *ad hoc*, making public disclosure of the examination maintenance and performance standard process impossible.

In the area of applying psychometric principles to the examinations (NCCA #11) severe weaknesses were found. Absent a requirement specification for each examination, it appeared that the incorrect distracters for each item were generated more-or-less anecdotally. They seemed reasonable distractors to the authors, but peer review during the assessment found severe

problems with this approach. Also, no documentation was maintained to support the weighting and prioritization of knowledge domains within Program bodies of knowledge.

Regarding psychometric principles in grading (NCCA #13), the passing grade of 75% on each examination section was completely arbitrary, and no psychometric model existed for justifying this cut-off against the examination items actually used. No scoring analysis was conducted after examination grading and the issuance of results. Items that were biased or incorrect were going undetected and unresolved.

With only a single assessment instrument per certification, no score balancing rationale has been necessary (NCCA #15) because there were not two versions of any particular examination for which equivalence needed to be shown. However, because no cut-score analysis was used to determine passing scores, no such rationalization would be possible even if there had been multiple examinations. The was no way to know if cut-score analysis for instruments that are changed over time would result in different cut points, and so it was not possible to assert that any examination had maintained level difficulty and validity over time.

There were no document retention and security policies or procedures (NCCA #17) in existence at the time of the assessment. Also, continuing education criteria (NCCA #20) were not consistently applied to recertification reports. There was no documentation demonstrating any ties between the current continuing education criteria and actual continuing competency against the bodies of knowledge.

The annualized reporting period aggravates processing problems in the administration process, decreasing the actual value added to each recertification report. Annual reporting discourages certificants from participating in larger or broader recertification activities that might create too many hours to be reported in one year.

Finally, since the Program had not yet demonstrated NCCA compliance, continued compliance was not possible (NCCA #21).

These weaknesses were very significant and informative. Half of the criteria in the NCCA standards had not yet been implemented in the QAI program, and many of the gaps were complete. Little to no effort had previously been put into compliance with many standards categories. While disheartening to learn that so much work remained to be done, the team was anxious to get started because the path to improvement seemed very clear and visible.

Baldrige Comparative Assessment

The comparative assessment against the Baldrige criteria proved informative as well, although in different ways than the NCCA assessment. QAI managers, leading an organization with over 20 years of experience catering to the quality assurance industry, expected to compare quite favorably to the award criteria. In fact, alignment was poor; earning an assessment of *weak* on 15 of 19 criteria, and *strong* on none. Serious gaps were identified between the general quality management model embodied in the award criteria and actual QAI practices. Weaknesses are discussed below, and all assessment results are listed in Table 11.

Table 11 – Baldrige Compliance Assessment

Category		Compliance
1	Leadership	
	1.1 Organizational Leadership	Acceptable
	1.2 Public Responsibility and Citizenship	Weak
2	Strategic Planning	
	2.1 Strategy Development	Acceptable
	2.2 Strategy Deployment	Weak
3	Customer and Market Focus	
	3.1 Customer and Market Knowledge	Weak
	3.2 Customer Relationships and Satisfaction	Weak
4	Information and Analysis	
	4.1 Measurement and Analysis of Org. Performance	Weak
	4.2 Information Management	Weak
5	Human Resource Focus	
	5.1 Work Systems	Weak
	5.2 Employee Education, Training, and Development	Weak
	5.3 Employee Well-Being and Satisfaction	Weak
6	Process Management	
	6.1 Product and Service Processes	Weak
	6.2 Business Processes	Weak
	6.3 Support Processes	Weak
7	Business Results	
	7.1 Customer-Focused Results	Acceptable
	7.2 Financial and Market Results	Acceptable
	7.3 Human Resource Results	Weak
	7.4 Organizational Effectiveness Results	Weak
	7.5 Organizational Effectiveness Results	Weak

Note: Complete criteria text is in Table 1.

In the area of public responsibility and citizenship (Baldrige criteria 1.2), the operating philosophy of the Program included the notion of performing a public good, however no particular actions or procedures within the Program included direct public responsibility or accountability. We recommended that the Program needed to increase and improve its public outreach capabilities through governmental, societal, and media programs.

The Program also exhibited a lack a capability for strategic deployment (Criteria 2.2). The Program was already anticipating several strategic initiatives in terms of examination offerings, and extensions into additional and higher-level certifications; however, no particular action deployment processes or tools were available for actually deploying those initiatives in anything other than an *ad hoc* manner.

The Programs market focus was also found to be very weak. The Program was conducting no market or industry research and the Board membership was underutilized as a source of market data. (Criteria 3.1) Also, no satisfaction or performance measurement data was being collected from or about applicants, candidates, or certificants. (Criteria 3.2) There were no marketing campaigns targeting new customers in any category.

The information and analysis category also demonstrated major weaknesses. No performance measure data was being made available within the Program (Criteria 4.1), and no systematic data analysis was being conducted to monitor or alter Program performance. (Criteria 4.2)

Additional weaknesses were identified in the human resource category. No work system design was currently in place within the Program (Criteria 5.1) and no education or training in certification processing or procedures was being made available to the staff for their own

development. (Criteria 5.2) The Program was completely relying on on-the-job training and peer support for accomplishing tasks within the administrative functions. Proctors received virtually no formal guidance on how to conduct examinations. Also, the work environment at QAI is informal but harried. In the absence of processes and procedures, the informality of the environment creates additional stresses and barriers to success. (Criteria 5.3)

In the process management category, there were no formal processes or procedures for designing and implementing the products and services of the Program (Criteria 6.1), nor were there any formal processes or procedures for defining or managing partner or supplier performance. (Criteria 6.2) There also weren't any formal processes or procedures for administrative or functional support within the Program or Institute. (Criteria 6.3)

Finally, in the business results category, staff was typically overworked using current informal procedures, and stress levels were extremely high. (Criteria 7.3) There were no direct controls over how partners and suppliers furnish services on behalf of the Program (Criteria 7.4), and there were no key operational performance indicators in use within the Program. (Criteria 7.5)

Overall, the Baldrige criteria assessment showed that the Program was not following a sound or systematic management strategy for controlling and using resources. The application of NCCA standards to the specifics of the Program could only be accomplished in tandem with making improvements in these general management structures.

Problem & Opportunity Identification Stage

Having gone through reconnaissance, participatory stakeholders were in a position to discuss the variety of problems facing the Program, and to agree on the level of importance that

should be assigned to each by the team. Bruce and Wyman (1998) stress that beyond agreement, the engagement should seek actual consensus – active agreement – that take the stakeholders to a level of ownership. (p. 112)

In the autumn of 2001, the team continued using the Drucker (1999) tool to clarify opportunities that had been raised during orientation. As a group, the team committed itself to addressing 16 different opportunity areas that seemed to present themselves in the early findings. (Table 12)

Table 12 – What are our opportunities?

Opportunity Identified
1. Build the perceived value of certification.
2. Improve the administrative component of the program.
3. Work with universities and corporations to incorporate certification into their training programs.
4. Offer more levels/specialties of certifications.
5. Clean up our internal systems.
6. Downturn in economy means we need to increase perceived value.
7. Streamline current certification processes to grow.
8. Get our certifications recognized in more places.
9. Become accredited by an external body.
10. Move more of our certification processes to the web.
11. Staff and train internally to maintain currency of technology.
12. Set up new certification programs in related skill areas (e.g. risk mgt., project mgt.).
13. Keep up with technology of certification.
14. Get more involved with related bodies (e.g. SEI, IEEE)
15. Improve quality of existing certifications.
16. Expand into new or expanded specialties (e.g. COTS, automated testing).

(Drucker, 1999, Worksheet 3)

As a result of these discussions, the Program staff was able to present a composite finding and recommendation to the CEO in August, 2001. They found that the current Program was operating out of control and was at risk of collapsing under the weight of current demand using current processes. In addition to simple workflow and workload problems, the program was making mistakes and allowing exceptions that place the integrity of the Program at risk in the marketplace. Their overall recommendations was to bring the current operation under process control before making any attempt to expand the range or variety of certifications offered. A medium-term target (perhaps 18 months) might be to achieve NCCA accreditation for the Program before expanding such services.

They translated their recommendation into a milestone schedule that would help close the gaps they identified in the Program over the following two years. (Table 13)

Table 13 – Initial opportunities identified

Short-term (2001)	Medium-term (2002)	Long-term (2003+)
Build and launch new certification web site. Launch reengineered applicant administration process. Reestablish partnering agreements and procedures with worldwide partners. Reestablish control of the examination host-and-proctor process. Revise policies for recertification, focusing on anniversary-based calendar. Launch new policies and procedures to current certificants, emphasizing integrity of program.	Expand certification board makeup and stakeholder coverage. Implement revisions to recertification process to support announced policy changes. Identify examination grading process improvements. Implement process for building examinations from controlled item bank. Implement expanded CQA and CSTE item banks along with procedures for generating new examination instruments. Obtain NCCA accreditation.	Post accreditation: Launch new intermediate specialization certifications. Launch new master-level certifications.

After completing most of the operational improvement activities in their list over the first year, the team returned to the problem and opportunity identification stage to reassess their views that had developed earlier. Two key differences were very evident in their second pass: a) with improvements already seen in the day-to-day administrative operation of the Program, the level of subjective pressure had relaxed considerably over the first year, and b) the team had become very familiar with the certification disciplines and standards over the first year, and were

in a position to apply the standards to themselves objectively and rationally. These differences made the team highly effective in conducting continuing self-assessment throughout 2002.

Their findings were extensive, and pointed to significant changes and improvements still to come. A common comment from participants during this stage was that the day-to-day chaos prior to the engagement had kept most of the primary certification issues hidden. Everyone was amazed at the rigor and organization that was required to run a successful certification program. Their October 4, 2002 assessment report to the CEO included the following findings:

No designation definition existed. Each of the program certification dimensions – current and future – needed an operational definition. Such a definition, in a paragraph or two, would provide an unambiguous description of what a certified individual is expected to know and be able to do; without reference to some implicit shared expectation that actually leaves the interpretation of level of skill and knowledge up in the air.

*No job analysis existed***.** No formal job analysis had ever been conducted against the job categories in the program, and the few informal analyses that had been collected at program startup were over ten years old. Against each operational definition there should be an up-to-date, complete, and thorough job definition, characterizing the skills and knowledge domains expected of someone who just reaches the skills and knowledge in the designation's operational definition.

BOK categories were non-exclusive. The body-of-knowledge needed to be defined hierarchically in such a way that individual skills and knowledge areas would fit under one, and only one, category or designation. This was critical to prioritization of items on examinations, and the program's ability to score and assess candidates under the NCCA standards. Each

examination item had to be able to be assigned to one BOK domain, and could not be applicable to multiple domains.

*No item weighting or required equivalence***.** No two questions on a certification examination are the same, and it's not possible to have a 100 item multiple-choice examination where every item has the exact same difficulty. The program used such a scenario, where every question carried equal weight toward the final cut score. As items across examination instruments varied, it meant that some of the program exams were more or less difficult based on the luck of the draw on items used. The program needed a proper difficulty weighting for every item so that equivalent cut scores could be calculated for each examination instrument separately.

No cut score algorithm. The arbitrary examination passing criteria of 75% of questions was invalid. The program needed to use the item weighting process to assign independent cut scores to each of the four examination parts. Once done, a single score for the entire examination would be possible. The cut score algorithm needed to be published, as well, under NCCA standards.

Grading must be by each distinct item, no inter-item dependencies. Defensibility of the examination process was dependent upon being able to demonstrate exactly what items were found to be incorrect on each failed examination. Each item needed its own score, and that score must be tied directly to a candidate's response on that one item; not to any general trend in candidate answers against other questions. The way the program used Parts 1 and 3 as predictors of Part 2 and 4 results went against the standards.

No post item analysis of raw vs. adjusted score. The program had no mechanisms in place to evaluate and re-score individual items that might have been found to have problems

after an examination had been given. There were specific item-response statistics to look for that might indicate that one or more distractors on an item were behaving as correct responses. Such items often would need to be re-scored to allow for multiple responses. The typical trend tended to be four or five questions per examination administration. Without such a process in place, the program was open to appeals and litigation by every borderline non-passing candidate.

No post exam analysis for bias and inter-item discrimination. The program had no mechanisms in place to evaluate and re-score complete examinations that were shown to have cultural, experiential, or other bias demonstrated by the item statistics. Again, this left the program open to challenge by borderline non-passing candidates from minority industries or cultures.

Conflicts of interest. The program lacked an outside board, even if advisory, for justifying major policy and process decisions made by the program. Because so many program decisions involved financial implications for QAI and its affiliates, there were many conflicts of interest. If the goal was to be a business that certifies people, then that would be fine. But if the program wanted to be an accredited program, these conflict must have been corrected to show that program decisions were made with the candidates and profession paramount. Since the program knew that many of applicants were actually under-qualified, it was a conflict of interest to continue encouraging them to apply.

Item writer representation; by industries, experience, geography, and markets. The program had no representation in the item writing process outside its own walls. As the program moved toward item weighting, representation from a very broad constituency would absolutely be required.

Records management completeness and consistency. The program lacked records management policies, procedures, and facilities. The records for a single candidate or certificant were scattered all over the office; in files, people's heads, the NOAH database system, and several e-mail servers. Reconstructing an individual's complete record was almost impossible; making litigation discovery a major exposure for QAI. It also meant that staff loss was a major risk, and that cross-sharing of work was difficult among the staff.

Litigation issues; inconsistencies. Program processes had too many exceptions in them; many often made in the name of "customer service." Such exceptions outside the boundary of a formal waiver program opened the program up to exposure. Every time the program waived a fee, it opened up risk against every individual for whom the program hadn't waived that fee. The program needed to enforce strict policies; separating the conceptual responsibilities of the board to set policy from the administering staff to execute policy.

Process waivers; inefficiencies vs. liabilities. The program needed to establish a formal waiver program that could proactively do what the new, but reactive, appeals process was attempting to do. While exceptions create operational inefficiencies, the real exposure was in the general risk and liability introduced when operational staff was forced to interpret policy and make exception decisions on their own.

Governance; authority and makeup of Board. The program lacked any form of governance structure. Decisions in the program were made by one person, the owner. There were numerous conflicts of interest throughout our structure and partnerships. Program customers had no voice, and the public was not represented in the process. The basis for accrediting a program would be for NCCA to assure the public that the program was operating in their best interests. The program could not assert any of that.

Accounting controls and operating reserves. To be accredited, the program needed to show the financial stability to survive and continue to operate through any foreseeable downturn in relevant business or industry segments. Five years of history would be required, and individuals at the various NOCA conferences attended spoke in terms of being able to show that each market segment served was stable. Often international operations could be seen to be less stable; subsidized by the domestic operation. The program needed to seek financial balance and stability across the entire program.

International voice; particularly India. As an international program generally, and one in which half the customer base is in India, the program should be making sure that each international community had a voice in program processes. The challenge was to reach out to the communities without expanding the conflicts of interest that existed across the program. The program needed an independent board to foster outreach and involvement in India without using local QAI office and partnership agreements as the primary mechanism.

Need accreditation goal to be public. The program was defeating itself by not making interest in NCCA accreditation public. Every organization benchmarked commented that announcing accreditation as a goal removed much of the market and customer resistance to change that they had been encountering. This program was struggling everyday to defend many recent changes against criticism that would be different if staff could talk in terms of accreditation requirements, and the fact that many of the changes needed were non-discretionary. Also, the logic that some other organization could pass the program in the accreditation process was flawed. Accreditation is very difficult; and no program not already ahead could possibly pass this program and get there first.

Accreditation timeline. The program had major work remaining to do. As a virtual full-time push, with appropriate outside board and committee involvement, the program was looking at a minimum of two years: year-end 2004. If the effort continued in the piecemeal fashion that had been working, it would never happen.

These were significant problems to still be identifying 16 months into the engagement. The management team started tightening controls on scope, and the tgeam was repeatedly challenged to keep expectations and aspirations for change balanced against resources available for process and procedure design.

Aspirations Stage

The problems opportunities stage, both in the initial first-year assessment and the second-year follow-up assessment, clearly identified more opportunities and problems than cold possibly be addressed by this limited team in the timeframe that had been established. Thus, the team was in a position to be able to identify the specific issues that they wanted to address. As long as the baseline requirements for accreditation were targeted, the team had discretion regarding their own interests and aspirations for improvements. The emphasis in aspirations discussion was to set goals, not necessarily plan detail actions. (Bruce & Wyman, 1998, p. 127)

The goals that the team set for themselves were very customer focused, not necessarily surprising since the entire team worked for a quality assurance association. However, it seemed notable that few discussions involved identifying or targeting specific changes that would help individual staff members. The team had seem to congeal into a functional whole focusing on the overall mission. The team goals are listed in Table 14 and remained stable – with simple wording changes – over the life of the engagement.

Table 14 – What are our goals?

Goal Candidates Identified
1. Make certifications independent from QAI from customer perspective.
2. Have program certified/accredited.
3. Add master certifications and certificates of competency.
4. Change perceptions of recertification.
5. Add more perceived value.
6. Share ideas, approaches, and best practices.
7. Identify groups of special topics and interests.
8. Publication of materials in other than QAI publications (e.g. IEEE).

(Drucker, 1999, Worksheet 15)

When asked for aspirations, the Institute owners and board members, on numerous occasions, focused attention on broader issues and concerns, with particular emphasis on Program level scope:

1. *Streamline existing certification and recertification*. The owners saw this goal as largely operational. This wasn't surprising given the operational backlog and low quality of service associated withy the Program when this engagement began.

2. *Improve benefits and services to certified professionals*. This goal entailed friction between management and staff because the staff was initially defensive about being asked to provide more services too early in the effort. Their overall recommendation had been to stabilize and improve the core operating before expanding any services, and the management team was looking for almost immediate new information services to be made available to certificants.

3. *Improve and expand the certification Boards*. This goal actually resulted in friction between the owners and the board members. Board members wanted more influence over

Program activities and felt empowered by the NCCA standards that seemed to support their position. The owners remained reluctant to empower the Board beyond and advisory capacity throughout the engagement.

4. *Offer advanced and master-level certifications*. The owners viewed the Program as stagnant for a period of years. They wanted to grow the Program by launching new certifications that could be made available to the public quickly. The NCCA accreditation objective precluded this kind of quick growth precisely because of the standards for how to define and launch a new certification. The bulk of this team's effort was a direct result of the Program not following rigorous processes when launching the two certifications it was already supporting. The team heavily resisted rolling out new certifications in the near-term. This friction point would come up in every status meeting after January 2002.

Analysis of aspirations allowed the major stakeholders to discuss and prioritize what they wanted to do in order to reach consensus as to what would actually be planned. The friction between the improvement aspirations of the team and the growth aspirations of management would remain a clear and present danger to the initiative throughout its lifespan.

Action Options Stage

Once these higher-level goals and objectives had been defined, detail opportunity assessment and recommendation could be completed. Bruce and Wyman (1998) describe the use of analytical methods when moving through the action options stage, contrasting it with the aspiration stage that can define targets and prioritization with relatively little analysis beyond the previous reconnaissance. (p. 144) This stage made use of more traditional project planning and problem-solving techniques, particular stakeholder force-field analysis.

Some of the risk factors that the NCCA criteria forced us to pay particular attention to included: a) processing exceptions, where we cut a lot of corners, made decisions on expediency, and sometimes over-emphasized customer service over program integrity; b) body-of-knowledge weaknesses, including non-exclusive knowledge categories, too much little formal job analysis; and c) exam validity and reliability, requiring item mapping, difficulty-factor equivalence, and grading incompleteness. These areas were considered non-negotiable in planning because they represented the program's greatest weaknesses in approaching possible accreditation.

The following are more detailed action option recommendations developed against the above assessments and opportunities:

Mission statement expansion and clarification. The program mission statement "to facilitate and foster an industry-accepted common body of knowledge and code of ethics, and define and execute the examination, tracking, and support processes necessary for the ongoing certification of individuals to those standards" didn't properly explain why the program existed; it explained only part of what the program was attempting to do.

Our recommendation was to adopt a new mission statement targeting why the program exists: "To support the needs of information services quality practitioners, providing certification of their professional development as they evolve over their careers from entry-level novices to recognized and mature masters of their respective disciplines." We moved the clauses of the old mission statement to the start of a list of goals for the Program: a) facilitate and foster a comprehensive set of industry-accepted bodies of knowledge for current and emerging quality disciplines within the information services field, b) define and execute the examination, tracking, and support processes necessary for the on-going certification of individuals to those bodies of knowledge. We also added additional goals to fill-out the complete list of what the program

should be doing: c) promote those certifications across the industry and society so that they are increasingly seen as prerequisite to professional success in the field, d) build on those perceptions to continually enhance and build the peer recognition and employment value of those certifications among those who have been certified, and e) provide a governance and operational structure for the program that assures the on-going integrity and value of its certifications.

Redefined certification board. The certification board was poorly defined and utilized. Our recommendation was to create a renewed charter and set of by-laws for the Board as a means to gain involvement and interest while clarifying the roles and procedures for this body. We also recommended recruiting additional members from a broader constituency of the marketplace to satisfy the NCCA standards for Board make-up.

Gain control of partners worldwide. Worldwide partner organizations were not firmly controlled. Many of the most significant operational problems were in India, and the India affiliate was preparing to roll-out the Program across Asia. Our recommendation was to reestablish partnering agreements and procedures with each worldwide partner. The exact scope of this objective was undetermined, but required that those organizations around the world that support the program be brought into the effort of reengineering, and that their agreement and commitment to the revised processes and policies be established. Perhaps some form of administrative council would be required, made up of representatives of all of our global partnering organizations, thus helping to formalize the relationships and participation among these stakeholders.

Control of examination hosts. The various examination hosting sites were not well controlled. Our recommendation was to conduct a thorough reexamination of hosting policies

and procedures and build more aggressive and formalized procedures for hosting. Long-term direction for this activity would be contingent upon the outcome of strategic planning relative to examinations in the future.

Reduce staff overloading. The current program staff was overloaded in workload primarily because the lack of basic processes and procedures was making it impractical to meet current demand for paperwork and customer interactions. Our recommendation was to launch reengineered applicant administration process, including new forms and supporting procedures. Along with incorporation into the web site, this effort required planning transition procedures for candidates already in the pipeline using the old forms and procedures.

Empower staff to reject defects. The staff was internalizing too many errors and defects associated with customer-based inputs that should simply have been rejected and returned to the customers. Our recommendation was to provide empowerment briefings and support to staff, encouraging them to become proactive in reducing the effort expended to remedy unreasonable defects in customer input; while working to correct and improve preventative procedures.

Define administrative procedures. Administration policies were not well defined or known. Our recommendation was to define or clarify necessary policies in each program process. This effort would take most of the engagement first year.

Enforce known policies. There was a general lack of rigor in enforcing known policies. Our recommendation was to set standards for compliance and begin enforcement, allowing for reinforcing communications with customer and suppliers during the transition.

Define job responsibilities. Job responsibilities of staff members were not well defined. Our recommendation was to create a clear job description and set of objectives for every program position. In particular, we recommended formalizing the role that non-program

Institute resources play in providing day-to-day coverage for program resources within the Institute.

Improve database support. There was poor data base support for candidates and certificants. Our recommendation was to review the data base application capabilities (known as NOAH) and assess viability for long-term support. We further recommended defining and evaluating alternative data support mechanisms.

Define proctoring procedures. Absence of test administration and proctoring procedures was a major risk to the assessment process; and ultimately to the credibility of the entire program. Our recommendation was to develop detail hosting and proctoring procedures and then train all examination proctors in their use. We recommended considering sending a staff member to each examination location for at least one examination cycle to assure proper compliance.

Define certification expansion procedures. No processes for defining new or expanded certifications existed. Our recommendation was to use the projected new certification program (e.g. software project manager) to develop and pilot the procedures dictated by NCCA standards for defining and launching a certification Program. Earning accreditation would also require us to try to apply those same procedures retroactively to our two existing certifications.

Define maintenance procedure for BOKs. No defined process for maintaining bodies of knowledge existed. Our recommendation was to adopt the NOCA guidelines for body-of-knowledge definition and development. Enough was known across the competency assurance profession so that none of these procedures needed to be developed from scratch.

Build assessment item inventory. No inventory of assessment items for building examinations existed. Because this was mandated by the NCCA standards, we recommended

that work begin immediately on establishing this required item bank. As a heavily labor-intensive activity, this action option would receive heavy resistance from the owners over the next year.

Reduce labor intensity of grading. Examination grading was labor intensive with limited pool of graders. Our recommendation was to move immediately toward computerized grading of multiple-choice portions of the examinations, and to begin the process of converting the two essay portions to multiple-choice as well. Initial activities in this area would involve identifying and eventually purchasing the grading hardware and software required for such automation.

Enforce admission requirements. Admission requirements were not consistently enforced. Our recommendation was to begin enforcing standards better on initial candidate applications, after first developing a set of checklists and transmittals that would make it easier to communicate rejections to applicants.

Enforce CPE evaluation criteria. CPE evaluation criteria were not consistently enforced. As with the previous item, our recommendation was to begin enforcing standards better on CPE certifinat packages, after first developing a set of checklists and transmittals that would make it easier to communicate rejections to certificants.

Reduce recertification labor intensity. Annualized recertification was labor intensive and results in poor service to certificants. Our recommendation was to adopt a two or three-year recertification period based on the anniversary of certification. This would spread the work out over the course of the year, and would reduce the workload each year by half or two-thirds as recertification filings were spread out over a broader period.

Improve certification web site. The certification web site was poorly structured and not easy to use. Our recommendation was to build and launch new certification web site. This

activity was already in progress by the time this option was recommended, but this recommendation required considerable generation of new content and organization, removal of obsolete automated forms, and preparation of structure for anticipated new and revised processes that would roll-out over the course of the next year. Success would need to include a launch announcement for existing certificants.

Dispense with study guides. The study guides were a proprietary product of the Institute being offered as a direct component of the certification program. Our recommendation was to discontinue the provision of study guides to candidates upon acceptance into the Program. The study guides should be offered and marketed separately by the Institute as an independent product. This change would increase the perceived independence of the program from the Institute, and lower the unit cost per candidate.

Improve certification credentialing. The credentials issued by the program did not include expiration criteria in support of recertification requirements. Our recommendation was to discontinue the use of laminated plaques for delivering initial certification credentials. Future changes to the recertification process would likely require that new certificates be issued to certificants upon recertification, with certificates including expiration dates. Laminated permanent wall plaques were inconsistent with this approach. This change would also decrease processing time for producing credentials, and lower unit cost per certificant.

Adjust program fee structures. Program fee structures were adequate and appropriate compared to other certification programs. The $250 application fee was consistent with the marketplace. The American Society for Quality (ASQ) actually charged more, but then discounted to its own membership. We suspected that the vast majority were paying the member rate. Such discounting was contrary to the NCCA standards for organizational independence.

The $30 recertification fee was slightly higher than the norm. Resit and noshow fees were lower than sometimes occurs in the market.

Our recommendation was to leave $250 application fee where it is, and take advantage of additional margin generated by cost reductions in eliminating study guides and laminated plaques. We also recommended evaluating the slightly lowering the recertification fee as multi-year processing was introduced, perhaps back to $20 per year, requiring a $40 or $60 payment at recertification.

Eliminate fee refund situations. Offering a refund for candidates who withdraw was inconsistent with what other certification programs were doing, and discouraged a full commitment from candidates. Our recommendation was to discontinue refunds, making all fees nonrefundable.

The overall set of recommendations that was developed by the team is summarized in Table 15.

Table 15 – Strategic Action Plans

Program Function	Action Plan Items
Programming	New Certification Levels (End 2003)
	Offer multi-level and master-level certifications.
	Marketing Communication (Late 2002)
	Employer companies
	Public outreach
	Government and regulatory affairs
	Industry media outlets
Assessment	Exam Hosting
	Streamlining requirements and forms. (mid 2002)
	Detailing rules and regulations regarding hosting
	Reimbursements re-evaluated
	More standard contract
	Exam Proctoring
	Re-evaluating proctor rules and requirements. (Mid 2002)
	Does not have to be certified to proctor
	Can't take exam for 2 years
	More detailed instructions
	Contracts for proctors
Certification	Application Processing (09/01/01)
	Changes to the application process and credentials required
	Updating and/or changing all forms
	Implementation of verification procedures
	Strict deadline enforcement
	Recertification
	Changes to the recertification process and years of submission.
	Revised Policies (End 2001)
	Revised Procedures (Mid 2002)
	Credentials
	Expiration dates to support recertification requirements
	Support recruiter verification requests
	Focusing on credential audits and verification. (2001)

Table 15 – Strategic Action Plans (cont.)

Program Function	Action Plan Items
Administration	Web site (09/01/01)
	Setting up new website that is more streamlined and accurate.
	Community forums including certificant only area (2002)
	Record Keeping
	Streamlining files (Mid 2002)
	What files to keep?
	How files should be kept.
	Support new appeals process
Governance	Reorganize Boards
	Create charters and processes for the responsibilities and requirement for board members. (End 2002)
	What should they be responsible for?
	What is required to be a board member?
	Format charter
	By-laws
	Job/portion description
	Quarterly meetings, using conference calls
	Appeals committee
	Accreditation
	Member of NOCA (Early 2002)
	Achieve NCCA accreditation for program. (Early 2003)

Priorities for each recommendation were reviewed with management. Discussions included mapping each action option against the broader strategic objectives for the Program in the Institute's business plan. (Table 16) This mapping help established priorities and schedules for distinct projects over the two-year engagement.

Table 16 – Project Impact on Achieving Strategic Objectives

Action Projects	Streamline Existing Certification and Recertification	Improve Benefits and Services to Certified Professionals	Improve and Expand the Certification Boards	Offer Advanced and Master-level Certifications
New Certification Levels	Low	Low	Low	High
Marketing Communication	Low	High	Medium	Low
Exam Hosting	High	Medium	Low	Medium
Exam Proctoring	High	Low	Low	Low
Application Process	High	Low	Low	Low
Recertification	High	High	Low	Low
Credentials	High	High	Low	High
Web Site	High	High	High	High
Record Keeping	High	Medium	Low	Low
Reorganize Boards	Low	Low	High	Medium
Accreditation	Low	High	High	High

Action Phase

Taking action during this engagement was very difficult because everyone on the team was already overworked by the very tactical problems that we were initially looking to solve. Beyond the resourcing problems, selecting specific projects within the selected priorities was relatively easy. An advantage of selecting accreditation as the high level objective was that the path between where we were at the beginning, and where we wanted to be at the end, was quite clearly and specifically defined in the NCCA standards. We rarely had to stop and debate whether or not something needed to happen. The only problem was the on-going allocation of limited resources.

Experimentation Stage

Bruce and Wyman (1998) describe the experimentation stage as a "logical safeguard" (p. 168) over the change process. Each of the actions taken in this engagement was taken tentatively. All new processes and procedures were subject to extensive testing in the field. Because of the cyclical nature of the engagement, there was almost always something in the engagement upon which we were experimenting at all times during the two years.

With an extensive network of certification board members and examination hosting affiliates all over the world, there were extensive opportunities for stakeholders to try out procedures and comment on strengths and weaknesses. And they did. Sometimes acceptance was immediate, and at other times resistance was fierce. We also allowed significant time in our team schedule to review customer feedback after each staged launch.

With more time and money, we would have established customer focus groups to pre-test certain roll-out deliverables. But because we had to move quickly and cheaply, many of the procedures that directly affected customers were first seen by the customers when they went live.

Customer feedback tended to be mixed, and we often reacted with changes in the next round; but a more proactive voice of the customer could have been used to lower overall market resistance.

Experiment Results Analysis Stage

For each mini-launch of changes in procedures, the experimental process we used made changes available to a combination of key stakeholders available in advance. The groups typically included all certification board members and many of the hosting leadership from the various QAI Federation chapters. About 100 people made up this advance list.

Extensive e-mail communications were maintained with this group through the launch periods. As a group, they were extremely vocal, and answering their challenges required us to fix inconsistencies we hadn't spotted in our own work, and often resulted in additional improvements in the final procedure roll-out. While their questions and feedback was extremely helpful, it also showed us the extent to which even these key stakeholders knew very little about certification when considered from the point of view of accreditation.

General Program Feedback

One particular feedback exchange – regarding the changing of the Certified Quality Analysis (CQA) designation to Certified Software Quality Analyst (CSQA) – is highly representative of this issue:

> *Feedback:* What ever happened to doing a survey of your customers? Isn't *that* in the QAI methodology, or do you just preach it and not practice it? Your credibility and motives are starting to be questioned on a large scale basis. In addition, I sense that in the last couple of years, the CQA is just getting recognized. Changing it now may lead to confusion.
>
> *Response:* Applicants and certificants may be customers of some of our processes; but they are NOT the primary customers of the program. The customers of the certification program are the employers who trust our CSQA and CSTE brands when making hiring and promotion decisions. It's wonderful to see so many job openings listed as desiring a CQA certification. Unfortunately, a lot of those openings are looking for ASQ CQAs. This creates a lot of confusion among employers evaluating the usefulness of our

> certifications. We'll be doing a marketing campaign soon to promote the new designation among participating companies.

What we learned from feedback like this was that many of the people participating in our Program were not completely understanding the breadth and depth of what our certification was intended to assure to employers, or even that fact that it was employers and not the candidates who were the ultimate consumers of our services.

In addition, we continually ran into the issue of our certificants wanting to be able to claim that their certification was much broader than our body of knowledge could justify. They wanted to interpret our breadth to be the same as the Certified Quality Auditor (CQA) designation from the American Society for Quality. Our designation name change directly challenged this notion, as a feedback exchange illustrates:

> *Feedback:* Changing the CQA to CSQA is really unnecessary, and not appropriate. A CQA is concerned with processes and process improvement, NOT just Software. So, now we have to get all of our business cards printed again because someone decided to throw software into the acronym? In the practice of IT quality assurance CQAs are not limited to software. CQAs practice their profession in many IT fields. In fact, QAI has made it well known that the certifications between CSTE and CQA are very different.
>
> *Response:* Our certifications embody general quality concepts to the extent that they form a foundation for discussing software quality. However, our bodies of knowledge and examinations focus on software issues. It would be misleading to the public and our profession to try to pretend that we cover the broadest scope of quality management knowledge and techniques. It simply isn't true.

And another exchange on the same subject:

> *Feedback:* CQAs provide IT management with vital information on quality processes and process improvement. Changing the name to CSQA would be putting restraints on the practicing CQAs in their ability to market themselves in these areas of IT quality.
>
> *Response:* The body of knowledge and examination instruments have always focused on software quality issues. The CQA has never been a general quality management certification. There are enormous areas of quality management knowledge and experience that are NOT tested by these examinations. Representing oneself to management as a general quality expert based only on the CQA designation is misleading, and should not occur.

These exchanges illustrated to us that we had a problem in the field that we had been unaware of, and that needed to be corrected if the integrity of the Program was going to be supported. Many comments, particularly in the opening months of the engagement, dealt with concerns over the scale and pace of change. For example, one participant thought that roiling out less official changes might leave open the possibility of pull-back:

> *Feedback:* While some of the items are headed in the right direction, those that may have more questions associated with them, might do well to be implemented with a "trial" period.
>
> *Response:* Breaking the changes up into a series of smaller changes was considered. A problem encountered was the inter-dependence of the changes themselves. A key goal of this reengineering was to tighten process rigor and increase examination security, while improving the consistency with which policies are applied globally. Key weaknesses were the difficulty of getting to the bodies of knowledge (they were in the study guide only), process definition and training (the old web site contained little process support), and the examination process (not updated often enough, hosting procedures too uncontrolled). Fixing these problems required comprehensive change, and to make such comprehensive changes only to come back later with a round that includes the name change would have created more problems than this single change effort. Remember, people just entering the program won't necessarily be conscious of all the differences; just as many people today don't recall that this program started out with a three-year recertification cycle.

Another respondent questioned whether or not we had collected enough input from out user, presumably candidates and certificant. Without disclosing the objective of achieving NCCA accreditation, we referred to two other standards we were using for improvement as part of our rationale of standard based improvement:

> *Feedback:* Beside trial periods, we might recommend that QAI conduct "user" surveys of all interested parties (companies, certified members, and perspective members). Improving the "product" is an ongoing necessity. Expansion of the certification and exploration of other types of certification might considered. Additionally, different levels of each type of certification might be considered, e.g. entry, senior, expert.
>
> *Response:* User surveys and focus groups will definitely be a key element of the next several rounds of changes. However, this first reengineering effort was primarily intended to bring the program into better alignment with AERA's Standards for Educational and Psychological Testing and NCME's Code of Professional

> Responsibilities in Educational Measurement. The clauses and requirements of those standards are not negotiable, and contrary user opinions from multiple stakeholders would not have been helpful. During future changes, at primarily the certification policy and procedure level, we will have much greater discretion within the standards, and so user and focus groups will prove more valuable.

There was continuous dialogue regarding the issues of scale and scope throughout the first six months of the revised program. It eventually settled down as people got use to the changes and worked in the new processes.

Financial Fee Feedback

We also received a great deal of participant feedback and discuss over changes we had made to the fee structure. The application fee of $250 had remained unchanged, but two changes were made within that structure: a) the Study Guide that had been included in the fee now had to be purchased separately from the Institute (an implicit fee increase if an candidate wanted the Guide), and b) the fee was now nonrefundable as opposed to refundable within the first year.

Regarding the Study Guide, one comment is highly representative of many received:

> *Feedback:* Why not continue to include the Study Guides with the exam fee? Or, is QAI just looking for another way to make money? The separate fee for the study guide is undesirable and should stay included in the $250.00 fee.
>
> *Response:* For years QAI has taken criticism for requiring that its own materials be used to prepare for the examinations. In fact, candidates are free to use any materials they want to prepare themselves. Including the Study Guides in the fee was tantamount to requiring candidates to use QAI materials. That's a conflict of interest when one considers that we're trying to run the program for the benefit of the profession, not just QAI. However, QAI is a business. QAI selling the Study Guides as a product is not in conflict with an independent certification program.

And comments about the refundability of the application fee were numerous, even though only a small percentage of candidates actually were taking advantage of the refunds:

> *Feedback:* Refunds should be allowed for major reasons. Will there be emergency situations outlined for refunding program fees?

> *Response:* Remember, refunds are only being eliminated for program withdrawals in the first year. Everything else was already nonrefundable. Other changes have been made to make it less necessary to enter the program far in advance. Withdrawal in the first year is already relatively uncommon, and should happen far less often in the future. Also, every decision in the program can be appealed to the Appeals Board. If someone really feels they want their money back, they can pursue that process.

Another comment again illustrated that some participants were operating under different assumptions than the improvement team was considering:

> *Feedback:* Non-refundable policy may discourage early enrolling. Early enrollment may be encouraged if you were to offer a refund if requested prior to the 60 day window.
>
> Response: We are not trying to encourage early enrollment; in fact, we'd prefer that individuals only apply when they feel they are ready to schedule an examination – about 90 to 60 days early. There is no reason to apply earlier now that the BOK and bibliographic resources are available on the web site.

Within a month of launching the new fee structure, there were virtually no complaints still coming in on these issues. We were learning quickly not to over react to participant complaints. Using the feedback process as a venting mechanism, many concerns seemed to go away quickly after exchanges like the one above.

Exam Hosting Feedback

We received a great deal of concerned feedback regarding changes we made to the examination hosting and proctoring processes. These questions raised concerns among our team because we thought we had simply been institutionalizing practices that were already in place. The even tighter controls we were hoping to implement were still in the future. The participant reaction to the early changes told us that the situation in the field was even less controlled that we had thought, and therefore the changes were even more essential.

One example dealt with what we believed had always been the standard policy on candidates not bringing materials into the examinations:

> *Feedback:* Currently candidates are allowed to bring personal possessions or paper into the exam. I would discourage this. Candidates have been encouraged by their companies to write down the essay questions and anything else they can remember to help prepare for the next exam. I believe that this practice allows consulting companies to be very succinct in coaching people to pass the exam. It also calls into question their support for the code of ethics.
>
> *Response:* Current policy is that candidates are NOT allowed to bring anything into the examinations. We even remove the blank pads that the hotel places around the room. If this is happening in the field, it needs to be corrected. New examination proctoring procedures are targeted for year-end, and correcting this defect will be one of the immediate changes.

Comments like these told us we had serious problems to correct to gain control for accreditation. We also saw problems in our ban on examination proctors being allowed to sit for the same examination for two years, as these two exchanges illustrate:

> *Feedback:* I do not agree with the two-year ban on sitting exams after proctoring. This may make people unwilling to be proctors if they plan on taking exams in the future or even prevent persons from sitting exams if they do not recertify. There is no mention that the exams will be renewed and updated every two years.
>
> *Response:* The ban is essential. Proctors have advanced access to the examination instruments. It would badly damage the credibility of the program if they could then turn around and sit for those examinations. Examinations change often enough that a two-year window is sufficient to assure that their examination would not be based on instruments and materials that they have had access to.
>
> *Feedback:* I also do not agree with the 2 year ban. This would hurt prospective candidates for certification for 2 years if they agree to proctor. Why not just have the proctor certified? Is there a shortage of certified people for proctors?
>
> *Response:* Yes, there is a shortage in many exam locations. Also, by definition, the old requirement makes it impossible to launch new certifications in the future because nobody is available to proctor the first exams.

Examination Scoring Feedback

The proposed change to alter examination scoring causes a major uproar. In the past, all examinations had been graded on a 75% passing-score basis. Everyone was used to that scoring,

and people resisted change. The actual change being made was required by the NCCA accreditation standards. Several exchanges were representative:

> Feedback: Eliminating the 75% passing criteria and moving to a "cut-off" type scoring is discriminatory and unnecessary. A "cut-off" scoring system is basically scoring on a "curve". It is so disparate that many educational systems do not even use it anymore. Two examples: 1) There is an exam taking place where there some really good exam takers, some medium exam takers, and some that had to really struggle to take the exam. All of them achieved at least a 75% on the exam, but you flunked those that were just at 75% or above because the really good exam takers scored in the 90% bracket, and medium exam takers scored in the 80% bracket. Did you really do those 75% people a favor, or did you discriminate against them? 2) You have an exam taking place where everyone taking the exam are poor test takers. Each scores under a 75% margin yet you have to pass some of them from that exam because you have to set a "cut-off" score for that exam. Oh, let's say the highest one was 74% on down. Now you have diminished the exam for all those that took it previously. "If it's broken - fix it, If it's not broken improve it" Doesn't seem like much of an improvement to our General Membership or me.
>
> Response: This isn't what "cut-score" means. Psychometric standards dictate that the passing grade for an examination, the cut-score, needs to be fair and consistent across examination instruments. This requires a formula be used that takes into account the difficulty of each question on an instrument. Each question on an instrument will have different difficulty, and will be weighted in the final score accordingly. Also, since multiple instruments are to be used, each examination could have a slightly different cut-score because of differences in questions and difficulties. For reporting purposes, the scores will be rationalized into a percentage just like today; and 75% is likely to be the passing grade. *75% of what* is the question. On easier examination instruments, it will be 75% of a higher number. On harder examinations, 75% of a lower number. These differences are invisible to the candidate, but are required by the educational and testing standards.

This participant clearly did not know what the terms *cut score* and *psychometric* meant, and reacted to the change from their misinformed view. Another participant made a similar mistake, confusing cut-score with sliding scale:

> Feedback: I think I have the greatest problem with the proposed sliding schedule. My understanding is that the certification is to represent knowledge and applicable expertise is certain areas. I do not expect this criteria to vary based upon what the others taking the exam on the same weekend as me may know/not know.
>
> Response: Again, it is not a sliding scale. Individuals are always measured against the BOK, not each other. The scoring simply takes into account the reality that some

> questions are more difficult than others and shouldn't be weighted the same in the grading. The education and testing standards make variability of examination instruments a desirable trait. The psychometric procedures are intended to protect candidates from undesirable impacts of those differences. Without the ability to vary examination instrument content, we would have know way to evaluate alternative questions and formats; a key requirement of the testing standards.

Most people's reactions were simply an indication that they had little to no expertise in psychometrics. The feedback iterations showed us that our Program documents and web pages needed to provide very good and detailed explanations of the new scoring procedures to alleviate these concerns.

Candidate Resitting Feedback

Of all the changes made during the first six months, the most controversial was a change to the policy regarding candidates resitting for the examination after previously having failed the examination. The old policy was that candidates received separate grades for each of the four examination parts, and only had to resit for the specific parts where their score had been lower than 75%. The new examination grading guidelines and examination variability structure made it so that the presumption that those individual parts would be the same the next time a candidate sat for the examination erroneous. The resit policy had to change to require candidates to resit for the entire examination. Participants erupted:

> Feedback: Serious heart burn here! Even the CPA exam - - arguable the most drastic in the known universe is able to be clearly broken into identifiable parts. I'd have argued strongly against this concept . Randomize the question for each part - - great. But to randomize the questions among all parts means that there are no parts at all anymore. It's just one big exam. This needs re-thinking.
>
> Response: The reason that an exam, like the CPA exam, can be broken up and managed by individual sections is that the population of people taking it is so large that statistical validity can be established for individual sections, even particular questions. Our exams don't meet that criteria.
>
> Feedback: Why can't the parts of an exam pertain to specific parts of the CBOK? Even the questions in the parts could be re-arranged. If a candidate fails a particular part the

> candidate can concentrate on that area rather than guess where their weakness may be. What is wrong with informing a candidate of an area of weakness? Re-taking the entire exam should not be a problem but not to know where a particular weakness may be makes it extremely difficult to study for. How can a candidate know what to improve in without knowing where their weakness is. How would this compromise the certification?
>
> Response: Even if particular parts could be equated with particular BOK knowledge domains, it still wouldn't support retaking only individual parts. Each time the examination is taken by a candidate, it could be different. The situation that needs to be avoided is the following: Someone takes the exam and passes Part A while failing Part B. On the retake (because of random item selection), Part A is much harder than it had been the previous time, and Part B is much easier. If the retake is only for a part failed, the candidate easily passes the second time, even if they might have failed the harder Part A. Requiring retakes to include all parts avoids this problem.

The above examples are representative of the types of exchanges that took place across the entire engagement on a wide variety of issues. In all, the team logged 4,487 specific feedback-response exchanges during the first year of the engagement. Many overlapped or repeated questions, but the shear number of interactions was amazing for the team to see. Most exchanges resulted in a tuning of our approach, either in outright changes to implement better ideas that had been offered, or to revise the documentation we had created that contributed to participant confusion. All added value to the initiative. It was from a renewed baseline of capability with the results of this feedback that the team could proceed with formalizing what had been learned in a new set of program policies and procedures.

Program Design Stage

With prototyping completed, and staff preferences used to help prioritize action plans, designing of the continuing program could proceed. While early pilots and experimentation highlight potential operational improvements, it was the need to drive toward accreditation that ultimately dictated the order and priority of planned program designs.

Program Advisory Board

An initial and immediate need was to establish a formal program governance structure beyond the local office staff and Institute management. Governance structure and independence were identified as key drivers of most of the changes required to achieve program accreditation. The program would need an active Board to provide industry-focused decision-making, and to spread the risk beyond QAI. QAI would be less liable to the extent that it could demonstrate that it was responding to the professional community.

Program governance would be built into a body of seven individuals who would comprise the *Software Certifications Advisory Board*. These individuals would be drawn from different stakeholder populations in order to represent the diversity of viewpoint and opinion referred to in the NCCA accreditation guidelines (see Table 17).

Table 17 – Proposed Advisory Board Stakeholders

Category	Members	Description
Employers	4	Organizations and entities that hire certificants and therefore place value in program designations.
Certificants	4	Individuals who have pursued and attained one or more program designations.
Industry & Profession	2	The collection of organizations impacted by the software quality profession regardless of the level to which they employ or use software quality professionals and the collection of people who make up the software quality profession regardless of whether or not they have attained any form of certification.
Public & Regulatory	2	A member of our general society who uses or is impacted by the software products created and maintained by our software industry, or someone representing the collection of interested parties (i.e. government, legal) who might look to regulate the activities of Software Certifications in some way.

Board membership would be both voluntary and uncompensated, with reasonable direct expenses shall be reimbursed when appropriate. The Board design included that concept that

Board members shall avoid conflicts of interest that would inhibit their ability to perform their duties on the Board. Stated conflict examples included: a) having a financial interest in the certification process, either as a host/proctor, or as a provider of certification or preparatory course services to the public, or b) being an employee or contractor of the administering organization, the Quality Assurance Institute.

Program Standing Committees

Assuring adequate levels of governance independence from program operations also required that we design a series of operational committees that would oversee certain program aspects, with less governance control than the overall Board, but more resources available for conducting work. Committee structures were proposed (see Table 18) that would focus specific chartered committees with direct oversight of key issues across the NCCA standard clauses.

Table 18 – Proposed Program Committees

Committee	Charter
Executive Committee	Responsible for the operation of the Board in the carrying out of its responsibilities and liaison with the QAI administration staff.
Certifications Committee	Responsible for the planning, definition, and launch of individual certification designations; including preliminary job analysis and bodies of knowledge.
CSQA Committee	Responsible for the planning and oversight of the job domain analysis, body of knowledge, and item bank definition and management for the CSQA designation.
CSTE Committee	Responsible for the planning and oversight of the job domain analysis, body of knowledge, and item bank definition and management for the CSTE designation.
Assessments Committee	Responsible for planning and oversight of the definition, creation, and management of certification assessment instruments.
Examinations Committee	Responsible for the processes and tools with which assessments are administered to candidates, including hosting and proctoring operations.
Recertification Committee	Responsible for the on-going monitoring and assessment of certificants against recertification standards and guidelines.
Ethics & Legal Committee	Responsible for the on-going monitoring and enforcement of the Code of Ethics.
Appeals Committee	Responsible for handling and resolving any formal appeals received by the program.
Nominations Committee	Responsible for identifying candidates for Board membership and verifying that those candidate have no conflicts-of-interest that would prevent them from performing as Board members.

Each Board committee would be chaired by a member of the Advisory Board, with the chairperson of the Executive Committee serving as chairperson of the Advisory Board. Membership on the different committees would be open to interested community individual stakeholders who could also meet Board requirements for avoidance of conflict-of-interest.

Job & Position Descriptions

With a governing Board established, and working committees oriented toward each critical criterion for accreditation, a complete program design required a more formal definition

of the staff positions within the Institute that would actually execute program processes and procedures. As a small organization, the set of positions were designed that included a single manager, with a collection of administrators reporting to that position.

The *Managing Director of Certification* would be responsible for general program governance and management, including:

1. Scheduling and coordinating all Board meetings and activities,
2. Maintenance of NCCA and ISO accreditations,
3. Coordinate partner relationships outside of North America,
4. Identification and development of new and extended services,
5. Defining the annual public examination schedule,
6. Coordination and maintenance of bodies of knowledge,
7. Coordinating with QAI governance and management,
8. Managing program budget and expenses,
9. Speaking about the Program at QAI and other conferences, and
10. Management of all Program administrator functions.

A *Certification Administrator* would be responsible for carrying out program procedures in accordance with Board and committee policy governance. Each certification administrator would have general responsibilities to be carried out within the program. These would include:

1. Participating in staff and planning meetings, as needed,
2. Maintaining appropriate records of all transactions in NOAH,
3. Assisting in the maintenance of effective program records management,
4. Helping to continuously improve program processes,
5. Producing weekly metrics for their functional transactions, and

6. Assisting other program staff during periods of peak demand.

Other specific responsibilities would be divided and allocated to different defined staff positions according to the categories of processes for which individuals would be responsible. Each category was defined as a specific role to be served as part of the duties of a Certification Administrator. (see Table 19)

Table 19 – Certification Administrators

Specific Role
Candidate Application Administrator
Credentialing Administrator
Hosting Relations Administrator
Item Bank Administrator
Examination Administrator
Recertification Administrator
Ethics & Appeals Administrator
Customer Service Administrator

There was no intention to define completely different jobs for each role. Initially, we estimated that each of the eight roles could be accomplished using roughly half of a fulltime resource. This meant that typically each of our four staff members could be assigned primary responsibility for two roles. Cross training was also planned. As Program demand grew, the capacity required to fulfill roles would grow, but the number of roles would be expected to remain stable. Thus, role-based assignments were seen as a flexible way to cross-train staff while maintaining assignment flexibility for bursts or decline in Program demand for services .Specific descriptions of the administrator positions would include:

The *Candidate Application Administrator* would be responsible for all point-of-service contact with program candidates as they apply for candidacy and schedule there examination sessions. Specific duties would include:

1. Receiving and reviewing candidate applications,
2. Rejecting inappropriate applications with responses back to applicants,
3. Conducting audit of periodic applications according to audit guidelines,
4. Processing approved candidate applications and payments,
5. Producing and sending confirmation letters of approved candidacy,
6. Receiving and reviewing examination selections and deferrals,
7. Rejecting inappropriate selections with responses back to candidates, and
8. Processing approved examination selections and deferrals.

The *Credentialing Administrator* would be responsible for all formal credentials issues by the program, beginning with examination entry tickets through new and reissued certification credentials. Specific duties would include:

1. Producing and delivering candidate examination entry tickets,
2. Receiving and processing credential replacement requests and payments,
3. Producing and delivering new certificant credentials, and
4. Producing and delivering recertification credentials.

The *Hosting Relations Administrator* would be responsible for all interactions with examination host organizations and the processing required to register proctors and sites. Specific duties would include:

1. Establishing formal relationships with host organizations,
2. Administering proctor agreements,

3. Administering examination site paperwork, and

4. Scheduling examination hosting sessions.

The *Item Bank Administrator* would be responsible for the creation, maintenance, and control of assessment items in all designated certification programs; as well as the production of examination instruments managed against the program's examination schedule. Specific duties would include:

1. Coordinating item writing activities,

2. Keeping the assessment item bank up-to-date, and

3. Producing examination versions.

The *Examination Administrator* would be responsible for all aspects of executing a scheduled examination, including send materials to, and receiving materials from, the host organizations responsible for holding scheduled exams.. Specific duties would include:

1. Producing examination packages,

2. Distributing packages to host contacts,

3. Receiving examination results from host sites,

4. Auditing proctor and control records for completeness,

5. Managing Scantron hardware, software, and procedures,

6. Grading examinations, and

7. Auditing examination results before credentialing.

The *Recertification Administrator* would be responsible for all communications and procedures related to recertification journals from certificants. Specific duties would include:

1. Producing and delivering recertification reminders,

2. Receiving and evaluating recertification packages,

3. Coordinating third-party review of activity claims, as needed,

4. Rejecting inappropriate packages with notices back to certificants, and

5. Processing accepted recertification packages.

The *Ethics & Appeals Administrator* would be responsible for maintaining the integrity of the program by verifying and validating compliance to all policies and standards. Specific duties would include:

1. Generating, sending, and processing audit records,

2. Receiving and processing all program appeals,

3. Making decertification recommendations to the Board, and

4. Communicating decertification decisions to appropriate certificants.

The *Customer Service Administrator* would be responsible for interactions with the marketplace, individually through correspondence, and globally through the web and marketing programs. Specific duties would include:

1. Handling customer correspondence,

2. Maintaining web site content,

3. Managing on-line program forums,

4. Monitoring other public forums and discussion areas, and

5. Producing program marketing materials.

Program Procedure Definitions

Specific procedures to be used in the execution of these duties were to be defined and developed over time by the individual staff members assigned to each role. Such procedures would be assessed by each relevant committee for potential support or conflict with relevant

NCCA standards. The staff was to be considered empowered to implement any process steps they deemed necessary that did not conflict with NCCA guidelines.

To structure their procedure creation, specific procedure categories were identified into which the staff would insert their procedures. This structure was deemed a requirement because of the clerical nature of the staff members, and their perceived and stated inability to understand the accreditation standards well enough to structure their own program procedures. The following categories were defined and communicated to the staff through a series of on-the-job workshop sessions:

1. *Define Market*. The Program would continually monitor the information technology and quality management market spaces in order to identify emerging specializations that would warrant expansion of the Program to offer additional certifications that would be valued by the market. Software Certifications should be stable over time, but should not stand still. As increasing numbers of professionals become certified, it would become important to continually offer those professionals continuing certification opportunities in order to promote their continuing professional growth. This would entail identifying additional certification disciplines that expand the breadth of certifications offered, as well as additional specializations within existing disciplines.

While baseline certifications (e.g. CSQA, CSTE) indicate minimum competencies within covered disciplines, the Program must continually identify higher-level certificate opportunities that can be sought by existing certificants. These will include technical subspecialties (e.g. e-commerce, data warehousing), functional specializations (e.g. manufacturing, marketing, logistics), or industry specializations (e.g. health, chemicals, telecommunications).

2. *Establish Certification*. The program would add new certifications, or specializations within existing certifications, in a manner that would provide for the on-going integrity of the program and its certifications through effective and sustainable governance and operations. Once a need for an additional certification or specialization has been identified, the governance and definition processes would be put in place for properly defining and managing its body of knowledge and assessment instruments.

3. *Conduct Job Analysis*. Each certification body of knowledge would be supported by a comprehensive industry-wide job analysis that assures that the body of knowledge, in its current variant, embody the actual practice and expected knowledge intended to be assured by passage of the certification examination. The actual skills and knowledge attested by the certification must be clearly defined, and agreed by relevant stakeholders to be representative of the true requirements needed to serve in a professional status in the appropriate disciplines or practice.

Industry fads unlikely to survive in the long-term would be avoided; creating certifications and specializations only for enduring and valued practices and subspecialties within information services. The ultimate goal of this process category would be to assure that the examination and other assessment instruments developed actually measure key performance indicators that can be seen to be valid and reliable in conferring professional certification. Such instruments require a rigorous and agreed definition of what is being measured.

4. *Develop Item Bank*. A comprehensive set of valid and reliable assessment items would be maintained across the spectrum defined by each certification body of knowledge.

5. *Construct Examinations*. Examination assessment instruments would be constructed and maintained from the certification item bank in a manner that supports educational assessment standards and program guidelines. For certification candidates, the day of the

examination is the big day for which many have been preparing for months, if not years. While the candidates must *take* the examinations; it is up to the host organizations and assigned proctors to assure that the examination is conducted according to all relevant standards and procedures. Key success factors include security, integrity, and control.

6. *Market Certification Program*. The program would market its certifications to the broadest range of stakeholders in order to maximize awareness and participation.

7. *Maintain Proctor Base*. The program would recruit, employ, and train examination proctors to perform assessment duties at all program-related examinations.

8. *Schedule Examinations*. Examinations would be scheduled proactively to correspond to certain QAI and Federation activities, and reactively in response to specific requests by outside organizations.

9. *Prepare Examination Packets*. Materials required by the proctors and exam candidates would be sent to recipients 30-days prior to any scheduled examination date.

10. *Conduct Examinations*. Examinations would be administered to pre-registered candidates at previously scheduled locations and times.

11. *Process Completed Exams*. Examinations would be graded on a timely basis along with all necessary statistical analysis to evaluate examination validity and reliability. Completed examination instruments would be received from field offices and host sites. Physical inventory and control of all completed examinations would be maintained throughout the grading and validation process, right through to final filing of examination instruments in certificant and failed candidate files. Grading would be reliably carried out with appropriate statistical control to demonstrate validity. Finally, adjusted cut-score grades would be correctly entered into each candidate's data base record to feed to the credentialing process.

12. *Report Examination Results*. Examination results would be communicated to candidates in a timely manner, along with all appropriate recognitions and credentials.

13. *Process Applications*. Applications received from candidates would be processed in a timely manner. Applications received from candidates would be inspected, recorded, and a confirmation package, including exam information and study materials, sent to the applicant.

14. *Request CPE Reporting*. A reminder would be sent to each certificant in order to facilitate the reporting of CPE credits and reduce processing and data defects.

15. *Process CPE Reporting*. CPE credit reports would require update to the Certificant Data Base and resolution of reports not consistent with reporting policy.

16. *Produce Credentials*. Each certificant needed to have a set of accurate and up-to-date credentials to identify them as a certified professional. In the past, the Program had sent every certificant a laminated plaque with a certificate showing their certification designation and date of certification. The old process was a one-time procedure at the time certificants were initially certified. In order to gain control over certification accuracy, a revised procedure would be needed to send a new certificate to certificants when they were initially certified, and then each time they successfully recertified. Certificates would need to include expiration dates so that certificants who did not recertify according to the current policies would not have a credential falsely showing them to be certified.

17. *Confirm Credentials*. Inquiries from employers about the meaning and status of individual certifications would be handled, both in-person and via the Internet web site.

18. *Monitor Ethics Compliance*. Increasing Program integrity meant that a monitoring and controlling process would be needed to handle ethics complaint violations. This set of

procedures would include an ethics committee that reviewed cases, and a program ombudsman to perform investigations and review complaints for possible committee action.

19. *Decertify Certificants*. A process would be put in place for the Board to decertify individuals found by the ethics process to be in violation of the code of conduct. This process would also be used to confirm the expiration status of certificants who had failed to recertify according to procedure.

20. *Process Correspondence*. Inquiries for general and candidate status information from certificants and others would be addressed continuously.

Many queries were actually requests to provide contact information (e.g. "How do I get information on SEI and their programs?") In these cases, procedures must be capable of responding by sending them the information as well as echoing the request to the contact directly (e.g. "SEI is in Pittsburgh ... and we've already requested them to send you the information you've requested.") This kind of echoing provides value in a couple of ways: a) it reduces the cycle time required for the initial requestor to obtain the desired information, and b) it provides Software Certifications visibility to the contact organizations to which we send such requests.

21. *Process Returned Correspondence*. CPE requests returned from recipients because of defects or changes require updates to the Certificant Data Base and follow-up action if the certificant’s new location is unknown.

22. *Revise Program Materials*. Certification program materials would be kept current.

23. *Revise Process Definition*. Process definitions and materials would need to continuously improve.

24. *Revise Curriculum Materials*. Curriculum materials would need to stay current, thorough, and easy to understand and use.

25. *Handle Appeals*. Candidates would have the right to appeal unfavorable examination results and program decisions.

26. *Conduct Board Meeting*. The Board would exist as an advisory body to plan and support strategic program direction, develop proprietary program materials and instruments, and address outstanding policy issues and operating exceptions.

27. Participate in QAI Governance. Procedures would be put in place to allow the Director of Certification to effectively participate in the overall management and governance of the Institute.

Operating details for procedures within these categories would expand and emerge over the entire second year of this case study. Each iteration of new procedures was field tested against operational requirements and against NCCA compliance. (Table 20).

Table 20 – Procedure Alignment to NCCA Standards

Procedure	NCCA Standard
Define Market	1
Establish Certification	2, 3, 19
Conduct Job Analysis	10
Develop Item Bank	11
Construct Examinations	11, 12, 15
Market Certification Program	1, 2
Maintain Proctor Base	
Schedule Examinations	
Prepare Examination Packets	
Conduct Examinations	8, 16
Process Completed Exams	8, 12, 14, 17
Report Examination Results	8, 14, 18
Process Applications	
Request CPE Reporting	20
Process CPE Reporting	20
Produce Credentials	
Confirm Credentials	9, 18
Monitor Ethics Compliance	
Decertify Certificants	
Process Correspondence	
Process Returned Correspondence	
Revise Program Materials	6
Revise Process Definition	16, 17, 18
Revise Curriculum Materials	7, 13
Handle Appeals	18
Conduct Board Meeting	1, 2, 3, 19, 21
Participate in QAI Governance	

Implementation Stage

The implementation stage was on-going throughout the engagement. Updates were implemented incrementally every month, and major functionality was altered quarterly. Program participants and users would have noticed process changes almost daily at times. Additions to sites and procedures were always added as they were ready. Changes that required training or explanation were saved for the monthly upgrades where newsletters and mailings could be organized around the deployments.

Program Evaluation Stage

Bruce & Wyman (1998) argue for the need for on-going evaluation of successes and setbacks throughout a major change initiative. Constant feedback is desirable from all action participants in order to assure that iterations come to a formal close and that the team doesn't end up wandering among the loose ends that never seem to get cleaned up. (p. 239)

Because the team was small, most internal program evaluation was informal. Weekly team meetings, monthly written status reports to the CEO, and quarterly verbal status reviews with the owners constituted the bulk of the engagement oversight activities. Stakeholder feedback was built into the process, with mailings, surveys, and conference presentations offered as often as possible.

Re-cycle Stage

Changes made in the engagement were incremental and continuous. Most changes resulting in an immediate recycling, either back to the beginning of the action phase to continue with another incremental addition, or back to the beginning of the research phase when beginning new processes that required more learning. It wasn't until the spring of 2003 that the cycle was broken by the owners as they terminated the initiative.

Stakeholder Perspectives

Different organizational stakeholders, both inside and outside of QAI, perceived the results of these change initiatives quite differently. Each had different expectations, and was affected in different ways by the outcomes. This section looks across the case from the perspective of each of the discrete stakeholder groups involved in these changes, including the owners of the Institute, the CEO, the Director of the certification program, the staff operating the program, the affiliates, and (of course) the candidates and certificants.

QAI Owners

It is very difficult to know exactly what the owners' perceptions of the engagement were throughout or after this engagement. Many of the behavioral signs that were observed in these two individuals turned out to have been interpreted incorrectly by the team. They committed significant resources to the effort, so the overt objective of obtaining NCCA accreditation was clearly seen as valuable to them. Beyond that general observation, though, little can be stated with complete confidence.

In the end, any changes that impacted short-term cash flow were inhibited by their actions; and so one can conclude with at least some confidence that cash flow was ultimately more important to them than accreditation. Indeed, based on their actions and statements toward the end of the engagement, cash flow appears to have been their primary driver. Had this been known early in the engagement, things would definitely have been done differently; although it probably would have been necessary to drop the accreditation objective. Cash flow could have been maximized by simply containing the scope of the engagement to the operational improvement made in the first year. I'm confident that, in hindsight, that's what the owners wish they had done.

Chief Executive Officer

The Institute CEO was the most vocal supporter of the engagement throughout the entire two years, and she spent a great deal of her time fighting against owner resistance. As a quality assurance professional, she quickly grasped the process and quality implications of accreditation, and understood the scale of changes that would be required to achieve it.

In an early conversation during the first summer, she and I spoke of how difficult it must be in the more typical NOCA member organization to achieve that insight. As quality assurance practitioners, it was our profession to implement process change. In other accrediting NOCA members, many of which were medical organizations staffed by medical professionals, they would have to first overcome a lack of process control understanding in order to pursue accreditation. We had a tremendous advantage because of our particular perspective.

Early on, we both believed that the owners must share similar insight. As founders of an Institute dedicated to quality assurance practice, clearly they understood what it would take for us to achieve accreditation. This belief was so firmly entrenched that first summer that we didn't make any effort to validate it. That was a serious mistake on our part. Most of the time that the CEO spent involved in this engagement was spent arguing with the owners. The friction created in their relationship with her started the decline that resulted in her being let go earlier this year.

In discussing this issue with her recently, she described the way that the friction she experienced with the owners was not limited to the certification program, but was common in every program within the Institute. Efforts to streamline conference processes, to update and rewrite education courses, or to bring membership services up-to-date with Internet support were all met with equal resistance. Any change that impacted short-term cash flow was inhibited. The issues surrounding certification brought the issue to light more clearly precisely because the

NCCA standards made what needed to be done so explicit. Unwillingness to conform to clearly written standards clarified the owner friction issue for the CEO. IN the end, she was glad to be out of the Institute because many of the changes she had wanted to make there were clearly never going to happen until ownership changes. As a privately held company, ownership wasn't going to change in the owners' lifetimes.

Managing Director of Certification

The managing director of the Program that participated in this engagement was not actually the director the day the engagement began. The initial director was terminated by the Institute in July 2001, shortly after my interviews with her during the orientation activities. Her termination, in hindsight, was a serious but unrecognized omen for what was to come in this engagement. As she left, one of her direct reports was promoted to the director position, and became my primary contact point at the Institute throughout the engagement.

The Program director was an enthusiastic supporter of this study. Having worked in the program for the previous eight years, she was knowledgeable about every aspect of program operations and procedures. We met two or three times a week in her office, and she held work sessions with her team several times a week. She also had primary responsibility for communicating resource needs and status with the CEO.

As the only engagement participant still working at the Institute after the study, she was directly impacted in a large number of ways, both positive and negative. Overall, she now reports satisfaction with what we accomplished. She had been highly skeptical of the owners support from the beginning, and wasn't that surprised when things got rough the second year. In hindsight, she recognizes that the changes we implemented during the first year have allowed her to survive in her job. She reports that Program volume has increased over the past year, and the

Program is only surviving because of the operational improvements that were enabled during 2001-2002.

Program Staff

The make-up of the program staff involved in the engagement changed periodically during the engagement. Some of the resource assigned to certification activities included part-time workers who were affiliated with the Institute periodically, and who tended to also devote time to other non-certification activities as well. Two full time staff members were dedicated to this engagement for the entire two years.

The staff reacted positively and enthusiastically to the changes being made in this effort, particularly the first year. They benefited the most from early operational improvements. Their work backlog had been enormous when we began. Almost half their work never got done at all, being largely abandoned when too much time had passed.

Candidate applications were taking more than a month to enter into the database, often getting processed after the examination date for which they were applying. A high percentage of certificant recertification packages ended up being approved simply because they had sat around too long, not because they had time to actually review and approve them. Examinations were taking four to six months to grade rather than the expected and published 30 day standard. As a result of problems like these, customer complaints and communications were taking three to four hours per day.

All of these problems had been resolved within the first year. Staff members reported high level of satisfaction with the new processes, and much higher levels of satisfaction with their jobs. There was surplus time available to work on process improvements, and to obtain much needed training in certification disciplines. Unfortunately, the owners identified the excess

time as an opportunity to downsize and eliminate positions. Both staff positions were ultimately eliminated. This cut saved the Institute about $40,000 per year, in a Program that was generating almost $2 million in revenue. We all felt the staffing cuts were extremely short-sighted.

Program Affiliates

Program affiliates worldwide were affected by this engagement as well, but none more so that India. All were affected by the increased rigor and scrutiny involved in all Program processes. We had many complaints from the field regarding the level of effort we were adding t oour processes; although we the general response was typically that he effort had already been implicit in the process expectations before the changes and that failure to maintain proper Program procedural integrity had placed everyone at risk. Most complied reluctantly, and improvements were seen in the Middle East, Canada, and Latin America.

The India affiliate was only responsible for operations in India at the beginning of the engagement. That affiliate used their certification operations to drive a large consulting practice throughout India. The affiliate employed over 100 people in its certification operation, and yielded a percentage of revenue to the owners. Many of the changes we pushed out to the field impacted the relationships that the affiliate had with its major clients in India. In essence, we got the feeling that they were simply selling certifications to companies in order to obtain other business. They, therefore, resisted all of our efforts to increase examination reliability and validity. In fact, they went directly to the owners with their concerns and were exempted by the owners from our process changes. The friction created by this issue brought the major problems to a head in the program, and represented the beginning of the end.

In response to pressure from the India affiliate, the owners made the situation much worse. Not only did the owners give India exempted control over their processes, they were also

given an expanded territory covering all of Asia. From our point of view, the India operation was being dramatically expanded before we had had a chance to correct many of its major deficiencies. As a final blow, the new contract with India was signed with a twenty year term. The owners had locked in a major cash flow for themselves for the rest of their lives, without showing any concern with quality levels of accreditation. But from the standpoint of the India affiliate; they had gotten everything they asked for, and more.

Candidates & Certificants

The customer base was impact in a variety of ways by this engagement. For candidates entering the program, processes and procedures were cleaned up, and most process steps easily met their public service level promises. Examinations were now being run by a better trained and equipped proctor team and hosting site management. Recertification procedures had been made easier, with the most significant change being the shift from annual to three-year recertification periods. The program web site now allowed employers to check the status of claimed certifications. Operationally, Program customer obtained better and more consistent service, and received required information from the program in a timely fashion.

Because the public never knew of the accreditation objective, they couldn't be disappointed by our failure to achieve it. They view the Program as much improved over the two-year period, unaware of the internal dangers that lurked behind the lack of accreditation. As quality professionals, they are being exposed in the trade press to information regarding the new ISO 17024 standard for accreditation; and it's only a matter of time before they look at their own certifications and wonder how their Program will do against that standard.

Conclusion

This concluding chapter reflects back on the totality of the two-year case study, its actions and outcomes, within the framework of Kotter's model of change. (Kotter, 1996; Kotter & Cohen, 2002) The positive and negative aspects of the big picture can be lost in the detail description of the previous Results chapter. This discuss focuses on only the big picture, and offers some perspective on what worked early in the program, why the program ultimately failed, and how the seeds of that failure are visible from the beginning in hindsight. The chapter then concludes with a brief discussion of the limitations to this case study approach, and offers suggestions for further action and research.

Establishing a Sense of Urgency

Kotter (1996) describes establishing a sense of urgency as looking for sources of complacency, and then working to overcome those sources. (p. 40-41) A crisis serves as an ideal mechanism for overcoming a reluctance to change. He describes the "absence of a major and visible crisis" (p. 42) as a significant detractor from implementing major organizational change. He goes so far as to suggest that the change agent "create a crisis by allowing a financial loss, exposing managers to major weaknesses vis-à-vis competitors, or allowing errors to blow up instead of being corrected at the last minute." (p. 43)

In June 2001, the QAI Certification Program was approaching a crisis condition. Staff capacity was overstretched, and significant portion of the organization's work-in-process was not being completed. Two glaring examples of work-in-process being ignored were the large piles of certificant recertification portfolios that sat unattended in the office six months after they should have been processed, and the rows of boxes of candidate examinations that still had not

been graded six weeks after the examinations had been administered. Hours per day were being spent by the staff simply responding to candidates and certificants seeking a status of their packets or examinations, all of whom had reasonably expected official responses from QAI within 30 days.

Kotter suggests that urgency can be imposed on a situation or organization by management. By setting goals or expectations above current capability, the entire organization reacts to the pressure using crisis mentality. That is what the CEO of QAI tried to do in the summer of 2001 when she set goals for the Director of Certification that called for all work-in-process backlogs to be cleared before the Labor Day weekend. She directly tied the staff compensation plan to achieving those goals, and added a detail discussion of status to her weekly staff meeting agenda through the summer. The goals were clear, and status visibility was high. The virtual impossibility of the task caused the certification team to respond with a crisis mentality.

This approach to crisis initiation fell immediately into one of the pitfalls described by Kotter; namely, shooting the messenger. It had been the staff who had identified and raised issues relative to process capacity and quality. They had been unhappy delivering such poor service to their customers and had been seeking support for correcting the situation. The result was simply increased pressure on the staff to work harder and longer to achieve quality under existing processes. No additional staff or funding were made available, and the result was a crisis mentality.

Creating the Guiding Coalition

Affecting change in an organization requires, according to Kotter's (1996) model, assembling the "right people … with strong position power, broad expertise, and high

credibility." (p. 66) The staff alone clearly did not comprise an adequate team for meeting the near-term or long-term Program goals. The operating philosophy at the Institute had always been to operate with a mostly clerical staff. The certification program staff were able administrative and office workers, but they were not well suited to a major Program reengineering project. Even the Director of Certification fell short on management skills. She might best be described as an office manager or service supervisor. The title of Director was not truly representative of her skills, or her authorized levels of responsibility.

The guiding coalition called for by Kotter required someone "with leadership and management skills, especially the former." It was into this role that I was placed in June 2001, and from which this case study developed. The staff responded well to my arrival, most likely because they were pleased to see someone actually dedicated to helping them achieve some of their tough goals. The CEO and owners communicated my arrival and role to the membership of the Certification Board, encouraging them to give us their full support as we began the challenge of rebuilding the certification Program.

Nominally, we had the public support of the Institute owners, the CEO, the Director of Certification and her entire staff, and the membership of the QAI Certification Board all aligned for moving forward. The situation was so dire at that point that the implicit goal of fixing and improving the Program was a common theme that everyone seemed to accept. At that level of granularity, all were together. It wouldn't be until the details of what needed to be done started to clarify that this coalition would start to unravel.

We had a common goal to pursue with an extensive dedicated team. Kotter's admonition that we have a clear set of goals that seem "sensible to the head" and "sensible to the heart" (p. 69) would guide us in moving forward.

Developing A Vision and Strategy

Kotter (1996) defines a needed vision as "a sensible and appealing picture of the future," (p. 71) and strategy as "a logic for how the vision can be achieved." (p. 71) Both are created by the organizational leadership, and then implemented by management creating plans and budgets.

Effective visions, according to Kotter (p. 72), are those that are:

1. *Imaginable.* An effective vision "conveys a picture of what the future will look like" (p. 72) in such a way that the stakeholders become able to imagine a future without the problems of the present. This means going beyond simply being able to say that the program can handle problems that it couldn't handle earlier; to being able to realize that many of those problems are actually no longer problems.

This was a very difficult challenge for the certification program staff. The idea that the Program problems could be eliminated seemed unimaginable in the beginning. For this reason, mediating visions needed to be discussed. The vision in the first six to nine months involved simply getting out from under the crisis mentality. As successes were achieved in these areas, the vision could be expanded to include more preventing and proactive activities and processes. Each step made the next step more imaginable, and the Program vision kept pace through the two years. The target that everyone was aiming for by late 2002 would have seemed laughable in the middle of 2001. That demonstrates progress, and highlights the importance of not setting sights too high too soon when building the coalition.

2. *Desirable*. The effective vision, states Kotter, "appeals to the long-term interests of employees, customers, stockholders, and others who have a stake in the enterprise." (p. 72) It wasn't hard to build a vision for improvement that appealed to everyone, particularly the staff. Everyone wanted to reduce the workload, improve service levels, and enhance the integrity of

the Program. But it would be implementing the integrity-aspect of the visions that would ultimately create the problems that would undo the Program. Integrity was desired and important to everyone, but it's impact on revenue and profitability were not immediately foreseen in the early months.

What the owners desired more than anything else would be revenue flow, and improving the Program would run into problems as soon as it became evident that a well run and high integrity Program would generate less revenue from any existing population than the existing Program. Revenue could be maintained through Program growth, but only after the operational Program capacities were made capable. Owner impatience would be the Program's undoing by early 2003.

3. *Feasible*. Kotter warns that a vision will become ineffective unless it "comprises realistic, attainable goals." (p. 72) Throughout most of the two-year study, feasibility appeared to be our greatest challenge. We were simply attempting to make changes of such a great magnitude that one needed always to question whether or not it could be done with the resources available. Ultimately the initiative failed, the desired outcomes being infeasible without the required management commitment and support. But one can argue that low feasibility was only a symptom of the fact that the goals became undesirable to the organization's key stakeholder, the owners. In hindsight, Program accreditation wasn't infeasible, but its implications were undesirable.

4. *Focused*. Our vision of becoming accredited by the NCCA within two-years was very specific and tangible. This met Kotter's guidance that an effective vision "is clear enough to provide guidance in decision making." (p. 73) By adopting accreditation as the rallying cry of our vision, we empowered everyone involved to think in terms of the 21 very specific criteria

that needed to be achieved. A vision based on best-in-class or simply improvement might have met other criteria, but wouldn't have been focused enough to organize and drive quick action plans. The specificity of the criteria, coupled with their external credibility, allowed everyone to get to work very quickly with that single goal in mind.

5. *Flexible*. An effective vision "is general enough to allow individual initiative and alternative responses in light of changing conditions." (p. 74) While the accreditation standards laid out specific criteria for Program quality, they were not normative with respect to how those criteria were to be met. The entire team recognized that the culture and personality of QAI needed to remain present in the reengineered Program, and the flexibility of the standard allowed work to progress within that framework. At no time was there interest in the QAI program becoming like some of the big-hitter organizational certification programs cited in the literature, and benchmarked through NOCA. The NCCA standards were flexible enough for our organization to achieve accreditation without sacrificing some of the characteristics that made QAI unique and effective in the marketplace.

6. *Communicable*. The goal of achieving accreditation easily encapsulated the work to be accomplished in a simple message, with Kotter suggesting that it "can be successfully explained within five minutes." (p. 74)

Communicating the Change Vision

Once the Program vision had been defined, it could be communicated to Program stakeholders. Little was communicated outside of the QAI organization the first year. The CEO and owners at QAI had decided that they wanted to achieve NCCA accreditation in such a way that they could announce to the world as the first IT certification program that had done so. This competitive position policy hampered the ability of the team to communicate changes with the

outside world. While changes were regularly communicated through mailings, the new web site, and conference presentations, none of those communications included the fact that we were targeting program accreditation. As a result, the context and rationale for many of the changes was absent from those communications.

Our failure to use the accreditation for many of our early communications hampered program efforts however. Negative feedback was received precisely in those areas where many of the changes being implemented to satisfy accreditation standards were contrary to historical practice at the Institute. In some areas, the personalized service with frequent process exceptions that QAI customers were accustomed to were eliminated in favor of the standards-mandated controlled approaches being rolled out. The customer backlash that resulted from our earliest September 2001 changes and follow-on January 2002 changes might have been prevented, or at least mitigated, had our accreditation goals been public. Certified quality professionals, we would argue today, would have found the changes they were resisting easier to accept if they had known that the changes were required by the shift toward accreditation, and that their certification would be worth more in the marketplace after our program achieved accreditation.

By keeping our accreditation goals secret for competitive purposes, we weakened the entire program. Public resistance would be a continuing problem throughout the two-tear effort. Perhaps if the goal had been public, the owners might have made a greater commitment to success in the long-run. If not, perhaps it was a good thing the goal was never announced since we ultimately failed to achieve it.

Empowering Broad-Based Action

Empowerment turned out to be the biggest limiting factor in the improvement Program. However, the issue did not result in problems until well into the second year. The low-hanging

fruit of the first year didn't threaten anyone within the Program. Resistance from the public began mounting in those early months, but within QAI everyone was benefiting from faster process, greater capacity, and improved cash flow. The first round of changes even improved gross profitability per applicant from approximately $50 to just over $110. With thousands of applicants per year, this short-term improvement was highly motivating to the management team. Under those types of conditions, there was a great deal of freedom to pursue change.

In the autumn of 2001, the staff felt empowered and energized to make changes and improvements throughout the program. Guided by the general standards for accreditation, the staff could pursue new and improved process changes throughout the program, with each staff member feeling free to take on the biggest problems in their respective areas. Life was exciting!

It was during the summer of 2002 that the barriers to empowerment began to appear. While the earlier rounds of changes had involved operational efficiencies and the completeness of required procedures, by the middle of 2002 the changes were beginning to attack the credibility and integrity of some of the inter-organizational relationships through which the Program operated. The staff increasingly noticed that the management team was impeding their progress when working with QAI affiliate chapter to set up new or revised examination hosting guidelines and procedures. Chapters who resisted changes increasingly went around the Program staff directly to the owners, who often exempted the complainers from some of the changes, undermining the Program.

Two major areas of conflict were the new certification board and the contract renewal with the India affiliate. The NCCA accreditation standards required a great deal of independence between the board and the management team, and yet the QAI owners continually resisted giving the board any formal authority or oversight. The contract with India was written

without direct involvement from anyone in the certification program, and the terms were seen as increasingly unfavorable to the program's ability to gain control over hosting and audit processes in Asia. Cheating in India was the programs most severe failure mode, and yet program staff were continually excluded from discussions by the owners. By the end of 2002, the improvement program was unraveling in these areas.

In early 2003 the first round of recertification packages under the revised recertification policies and procedures started to become due from certificants. As they began arriving, at a rate of hundred per month, even a preliminary review quickly showed that many certificants were not actually meeting the recertification criteria. The tighter controls built into the revised processes, controls that were communicated to certificants more than a year in advance, were not being met.

The staff viewed this trend as a major success for the credibility of the program. The recertification process would now weed out those certificants who were not truly practicing professionals. Many of these certificants probably should never have been certified in the first place, having slipped through the weak or nonexistent controls of the program's early years. Nothing could be done about that history, but the recertification program would now do the job of eliminating these weakest candidates from the rolls.

Likewise, changes made to the application process in 2002 were beginning to show results. The new process for verifying the education of candidates claiming an education exemption from the years-of-experience requirement was identifying and rejecting candidates who did not actually have the prerequisite education to support their exemption. The rejection rate was as high as 15% in some parts of the United States, and as high as 40% in parts of Asia, particularly in India. This meant that the large number of candidates who were applying based on too little experience in the field would be blocked from the Program.

Many of these applicants were destined to ultimately fail the exam because of their lack of experience, and now they were being screened out earlier without the need to take and fail the examination. By blocking them from program entry, the labor-intensive activities associated with application processing, confirmation, and scheduling could be avoided while also reducing candidate dissatisfaction upon failing the examination.

Third, by early 2003, computerized grading was fully in production for the multiple choice portions of the examination; saving hundreds of staff hours per month. The improvement program shifted toward working on improving the more labor-intensive reading and grading of the essay portions of the exam. The review that was conducted as part of that effort uncovered gross errors in the historical grading process that needed to be corrected. One audit found that from a sample of 20 examinations that had been "passed" by the grader, at least 14 should have been failed, and an additional 4 were highly questionable. The mis-grading was too extreme to ignore (e.g. full credit given to 20 point questions left blank by the candidate). Since the QAI owner was the grader, a confrontation was inevitable.

In the spring of 2003 that confrontation occurred, and the certification improvement program was dismantled. The team had been operating for two years under the mission of achieving accreditation for the program. Management had been very empowering when the changes involved didn't impact revenue. In fact, the first round of changes in September 2001 had increased applicant profitability by 120%. But challenges to the applicant education eligibility removed some applicants along with their $200 fee, and voiding recertifications removed their $33 annual fee. Causing most applicants to fail the exam in the grading process would cause future candidates to avoid or put off applying. In the end, the impact on cash flow

was not acceptable to the owners, and our efforts were cancelled. The improvement program simply ended in May 2003.

Generating Short-Term Wins

Short-terms wins had been the program's strength, particularly in the first year. The first six months of the improvement engagement saw dramatic turnarounds in process and team performance in virtually every operational process within the program offices in Orlando. These months also included major technological developments; such as the roll-out of new web site capabilities, and the piloting of computer-grading equipment for examinations.

Although some changes met resistance among some stakeholders, the overall response to these early changes was positive. Staff morale improved dramatically as the early changes proved that at least some of the administrative burden of the program could be shifted back onto the candidates as they applied for certification. The use of the new on-line forms for applications, coupled with the elimination of applicant study guides and certificant plaques, reduced the in-house backlog of administrative activities to near zero.

The only peaks remaining in the operational processes involved bursts of activity surrounding each scheduled examination offering. That problem had been resolved by summer 2002 when the program implemented its fixed quarterly examination schedule, reducing the burst office activity from 40 times per year down to four times per year. Increasing application lead times from 30 to 60 days further spread out the remaining load. By the end of the first year of improvements, the staff actually found that they had surplus time in their workdays to address more of the on-going changes in the program.

Consolidating Gains and Producing More Change

If this case study engagement had ended in the summer of 2002 after one year, it would have been declared a wonderful success. In the first year the program had gone from operational chaos and backlog to become a smooth running program administered using web-based technology, standardized forms and procedures, and extensive cross-training of office staff. When the program started, the staff were overstretched and often had to abandon work-in-process uncompleted. By June 2002, surplus staff time was available to invest in process improvement. Had the engagement ended there, everyone would have been happy.

But more strategic and valuable objectives had been set for the program, and the second year would be required to reach them. In many ways, the administrative and operational improvements of the first year merely established a foundation for beginning the second year improvements. Most of the remaining changes required going well beyond internal operational procedures. Establishing a truly independent certification board, building a new body of knowledge and item bank using diverse resources from across the industry, improving controls over the hosting organizations that administered examinations, and integrating full computerized grading into the examination process all required making extensive changes beyond the walls of QAI. To be successful, the owners needed to cede some control to others, and allow the program to take on independent governance as required under the NCCA accreditation standards.

The fierce resistance encountered from the Institute owners during the second year started out very subtly. Meetings would be delayed, or deliverables reviewed very slowly. Disagreements among stakeholder across the gamut were expanded by the owners, who often spoke in terms of not proceeding until all stakeholders were in agreement. It was only after such agreements started to be reached among the stakeholders that the true resistance of the owners

surfaced. Every idea that impacted revenue, or the centralized control on which the revenue stream was based, was consistently delayed or shot down by the owners. Eventually, when all other resistance seemed to be gone, the owners made their true objections explicit. Throughout late 2002, plan after plan was scrubbed or revised because of this resistance. In the end, the improvement effort collapsed under this weight. It simply wasn't possible to give the owners the control and revenue growth they demanded while moving the program toward accreditation.

Most of the staff, up to the CEO of the Institute, believed that revenue growth would be assured in the long term by accreditation. The revenue impact of the improvement program changes were temporary, and would be more than made up for by reductions in relative operating costs, and increased demand for the program worldwide after accreditation had been achieved. Throughout early 2003 though, many compromises were attempted with owners. All ultimately failed, with the final confrontational meeting between the management team members in February 2003. The program was allowed to run its course through the spring, and some marginal additional operational improvements were realized, but most accreditation-oriented efforts were wound down.

Anchoring New Approaches in the Culture

Kotter identified cultural anchoring as the last stage of change. (p. 157) He emphasized that real change anchored last, not first. Successful change wouldn't come from mandate at the beginning, but through commitment and effort throughout, so that cultural change tends to emerge from the overall change. In the case of this case study, the final cultural changes did indeed come at the end, but not as expected earlier.

The turmoil over the owner's refusal to allow the second year process changes caused a severe morale drop among the staff, and seemed to invoke a basic paranoia in the owners. By

mid-2003, the owners had laid off two of the four full time staff in the certification program. By the end of 2003, one more staff member was let go, as the Program was cut to the bone. The staffing cutbacks were largely enabled by the operational improvements that had been made over the two year period. One or two people could now do the job that had required four or five people to accomplish under the original system.

One wasn't quite enough. Some backlog and abandonment returned at the margins, but not in areas that effected revenue. After some additional months fighting this trend and the effects on the office setting, the CEO was let go in January 2004. Of the six of us who started the initiative in June 2001, only one remains today, assisted by a half-time temporary clerk. The program hasn't and won't apply for accreditation in the foreseeable future.

Limitations & Future Research

This study suffered from limitations when considered as an example of how a professional certification program can improve itself and earn formal accreditation. The biggest limitation, beyond the simple fact that the effort failed, was the fact that QAI was a for-profit corporation with owners who expected a financial return. In fact, they expected an unreasonable and excessive return. In contrast, most professional certification programs operate as not-for-profit corporations, and so do not face the specific limiting factor of revenue growth.

As a case study, the QAI Certification Program offers a benchmark for how to go about many of the operational and administrative improvements required for accreditation. It may also serve as an effective benchmark for why such certification programs belong in the nonprofit sector. Further study is required to determine whether the nature of the organization, or the particular personal perspective of the owners, created the central problems that this effort faced. The central lesson learned here was that accreditation of a program like the QAI Certification

Program is not compatible with maximizing short-term profits from such a program. Research could explore whether a publicly traded for-profit company could have been more successful,

Accreditation requires a major investment, and can't be rushed through to support an anticipated marketing campaign. With better and earlier multi-stakeholder involvement these efforts might have been more successful; but the financial greed of the owners makes even that possibility very unlikely.

References

Albert, K. A.; & A. L. Darrell (1999). The role of perceived barriers in career development: A social cognitive perspective. *Journal of Counseling and Development, 77*. 431-436.

Alderfer, C. P. (1972). *Existence, relatedness, and growth: Human needs in organizational settings*. New York: Free Press.

Ascher, B. (2002, February). *International dimensions of certification and accreditation: The role of trade agreements*. Paper presented at the Open Forum on ISO/IEC 17024: Accreditation of Personal Certification Bodies, Washington, DC: American National Standards Institute.

Ashforth, B. E. (2001). *Role transitions in organizational life: An identity-based perspective*. Mahwah, NJ: Lawrence Erlbaum.

Babbie, E. (1998). *The practice of social research*. Eighth edition. Belmont, CA: Wadsworth Publishing.

Baechle, T. R.; S. K. Bryant; & M. F. Traband. (2003, November). *The politics of certifications: Certification boards vs. professional societies*. Paper presented at the NOCA 2003 Annual Educational Conference, Orlando, Florida, 19-22 November 2003. Washington, DC: National Organization for Competency Assurance.

Baert, P. (1998). *Social theory in the twentieth century*. Washington Square, NY: NYU Press.

Barnett, W. P.; Mischke, G. A.; & Ocasio, W. (2000). The evolution of collective strategies among organizations. Organization Studies, 21(2). 325-354.

Bartling, C. E. (1997). *Managing association turnarounds*. Washington, DC: American Society of Association Executives.

Bettencourt, B. A,; & K. Sheldon (2001). Social roles as mechanisms for psychological need satisfaction within social groups. *Journal of Personality and Social Psychology, 81*(6). 1131-1143.

Biehl, R. E. (1995). Space activism matures. Ad Astra, 7 (5). 28-31.

Blumer, H. (1973). A note on symbolic interactionism. *American Sociological Review, 38*(6). December: 797-798.

Brown, D. (2002). *Career choice and development*. Fourth Edition. San Francisco, CA: Jossey-Bass.

Browning, A. H., Bugbee, A. C., & Mullins, M. A. (Eds.) (1996). *Certification: A NOCA handbook*. Washington, DC: National Organization for Competency Assurance.

Bruce, R.; & S. Wyman (1998). *Changing organizations: Practicing action training and research*. Thousand Oaks, CA: Sage Publications.

Bryson, J. M. (1995). *Strategic planning for public and nonprofit organizations: A guide to strengthening and sustaining organizational achievement*. San Francisco: Jossey-Bass Publishers.

Burrell, G.; & Morgan, G. (1979). *Sociological paradigms and organisational analysis: Elements of the sociology of corporate life*. London: Heinemann.

Carnevale, A. P.; & D. M. Desrochers (2001a). *Help wanted… credentials required: Community colleges in the knowledge economy*. (ERIC Document Reproduction Service No. ED451832) Washington, DC: American Association of Community Colleges.

Carnevale, A. P.; & D. M. Desrochers (2001b). The credentialing crunch. *Community College Journal, 71*(5). 33-39.

Charon, J. M. (1995). *Symbolic interactionism: An introduction, and interpretation, and integration*. Fifth edition. Englewood Cliffs, NJ: Prentice Hall.

Curry, L.; & Wergin, J. F. (1993). *Educating professionals: Responding to new expectations for competence and accountability*. San Francisco, CA: Jossey-Bass.

Cyr, D. R.; & L. G. Knapp. (2003, November). *Business plans and certification programs: A perfect fit*. Paper presented at the NOCA 2003 Annual Educational Conference, Orlando, Florida, 19-22 November 2003. Washington, DC: National Organization for Competency Assurance.

Dawson, D. J. (1987). Credentialism and commodity knowledge in the curriculum. *Education and Society, 5*(1-2). 29-35.

Drucker, P. F. (1999). *The Drucker Foundation self-assessment tool: Participant workbook*. Second edition. San Francisco, CA: Jossey-Bass.

Employment and Training Administration (1992). *Analysis on the findings of the public dialogue on voluntary, industry-based skill standards and certification*. Washington, DC: Office of Work-Based Learning.

Facklam, T. (2002, February). *From guide to standard: The importance of creating a global standard for personnel certification bodies.*. Paper presented at the Open Forum on ISO/IEC 17024: Accreditation of Personal Certification Bodies, Washington, DC: American National Standards Institute.

Gish-Panjada, D.; B. Hogan; J. Maronde; & J. Mitoff (2002, November). *Leadership development of board members: A profile of an effective member.*. Paper presented at the NOCA 2002 Annual Educational Conference, Tucson, Arizona, 20-23 November 2002. Washington, DC: National Organization for Competency Assurance.

Glassie, J. C.; & L. G. Knapp. (2002, November). *Program audits: Business, psychometric, and legal review of your certification*. Paper presented at the NOCA 2002 Annual Educational Conference, Tucson, Arizona, 20-23 November 2002. Washington, DC: National Organization for Competency Assurance.

Gottfredson, L. S. (2002). Gottfredson's theory of circumscription, compromise, and self-creation. In Brown, D. (2002). *Career choice and development*. Fourth Edition. San Francisco, CA: Jossey-Bass.

Hallenbeck, L. (2002, February). *Triangulating quality: The rationale behind accreditation of personnel certification bodies*. Paper presented at the Open Forum on ISO/IEC 17024: Accreditation of Personal Certification Bodies, Washington, DC: American National Standards Institute.

Hewitt, J. P. (1994). *Self and society: A symbolic interactionist social psychology*. Boston: Allyn and Bacon.

Holden, A. D. (2002). *A study of the relationship between participation in employer-provided professional development programs and project managers' intrinsic motivation, job satisfaction, and organizational commitment*. St. Louis, MO: Webster University.

Holland, J. (1996). Exploring careers with a typology: What we have learned and some new directions. *American Psychologist, 51*(4). 397-406.

Huber, J. (1973a). Symbolic interaction as a pragmatic perspective: The bias of emergent theory. *American Sociological Review, 38*(2). April: 274-284.

Huber, J. (1973b). But who will scrutinize the scrutinizers? *American Sociological Review, 38*(6). December: 798-800.

International Standards Organization (2003). *ISO 17024:2003 Conformity assessment: General requirements for bodies operating certification of persons*. Geneva, Switzerland.

Jacobs, J. A. (2003, November). *Legal issues in professional certification and the risk of liability for neglect or improper certification*. Paper presented at the NOCA 2003 Annual Educational Conference, Orlando, Florida, 19-22 November 2003. Washington, DC: National Organization for Competency Assurance.

Johnson, M. K.; & J. T. Mortimer (2002). Career choice and development from a sociological perspective. In Brown, D. (2002). *Career choice and development*. Fourth Edition. San Francisco, CA: Jossey-Bass.

Kemmis, S.; & R. McTaggart (2000). Participatory action research. In Denizen, N. K.; & Y. S. Lincoln (Eds.). *Handbook of qualitative research*. Second edition. Thousand Oaks, CA: Sage Publications.

Kennedy, M. M. (1979). Generalizing from single case studies. *Evaluation Quarterly*, 3(4). 661-678.

Kotter, J. P. (1996). *Leading change*. Boston, MA: Harvard University Press.

Kotter, J. P.; & Cohen, D. S. (2002). *The heart of change: Real-life stories of how people change their organizations*. Boston, MA: Harvard Business School Press.

Liebowitz, J.; & T. Beckman (1998). *Knowledge organizations: What every manager should know*. Boca Raton, FL: St Lucie Press.

Liebowitz, J.; & L. C. Wilcox (Eds.) (1997). *Knowledge management and its integrative elements*. Boca Raton, FL: CRC Press.

Mead, G. H. (1932). *The philosophy of the act*. Chicago: Open Court Publications.

Mead, G. H. (1938). *The philosophy of the present*. Chicago: University of Chicago Press.

Miles, M. B.; & A. M. Huberman (1994). *Qualitative data analysis: An expanded sourcebook*. Second edition. Thousand Oaks, CA: Sage Publications.

National Commission for Certifying Agencies (2001). NCCA standards for the accreditation of certification programs. Final review draft. Washington, DC: National Organization for Competency Assurance.

National Commission for Certifying Agencies (2002). NCCA standards for the accreditation of certification programs. Washington, DC: National Organization for Competency Assurance.

National Institute of Standards (2001). Baldrige National Quality Award: 2001 Criteria for Performance Excellence. Washington, DC.

Organization for Economic Cooperation and Development (1977). *Selection and certification in education and employment*. Paris: OECD.

Oster, S. M. (1995). *Strategic management for nonprofit organizations: Theory and cases*. New York: Oxford University Press.

Poloma, M. M. (1979). *Contemporary sociological theory*. New York: Macmillan Publishing.

Ritzer, G. (1991). *Contemporary sociological theory*. Third edition. New York: McGraw-Hill.

Rose, A. M. (Ed.) (1962). *Human behavior and social processes*. Boston: Houghton-Mifflin.

Schoon, C. G., & Smith, I. L. (Eds.) (2000). *The licensure and certification mission: Legal, social, and political foundations*. New York: Professional Examination Service.

Shein, E. H. (1989). *Organization development: Science, technology, or philosophy?* Invited address to the Academy of Management, Organization Development Division, New Orleans, August 15, 1989. Sloan School of Management, MIT, Working Paper # 3065-89-BPS.

Stake, R. E. (1995). *The art of case study research*. Thousand Oaks, CA: SAGE Publishing.

Stake, R. E. (2000). Case studies. In Denizen, N. K.; & Y. S. Lincoln (Eds.). *Handbook of qualitative research*. Second edition. Thousand Oaks, CA: Sage Publications.

Stern, G. J. (1999). *The Drucker Foundation self-assessment tool: Process guide*. Second edition. San Francisco, CA: Jossey-Bass.

Trahair, R. C. S. (1969). Dynamics of a role theory for the worker's judgment. *Human Relations, 22*(2). 99-119.

United States General Accounting Office (1993). *Skills standards: Experience in certification systems shows industry involvement to be key*. GAO/HRD-93-90. Washington, DC: United States Congress.

Winter, R. (1987). *Action-research and the nature of social inquiry: Professional innovation and educational work*. Aldershot, England: Avebury.

Bibliography

Allan, K.; & Turner, J. H. (2000). A formalization of postmodern theory. *Sociological Perspectives, 43*(3). 363-385.

Alvi, S. A.; S. B. Khan; M. A. Hussain; & T. Baig (1988). Relationship between Holland's typology and cognitive styles. *International Journal of Psychology, 23*. 449-459.

Anderson, R. C. (2000). *The interorganizational community*. Lewiston, UK: The Edwin Mellen Press.

Antonio, R. J. (2000). After postmodernism: Reactionary tribalism. *American Journal of Sociology, 106*(2): July:40-87.

Antonio, R. J. (1998). Mapping postmodern social theory. (Chapter 1) In Sica, A. (Ed.). *What is social theory? The philosophical debates*. Malden, MA: Blackwell.

Argyris, C.; & D. A. Schon (1978). *Organizational learning: A theory of action perspective*. Reading, MA: Addison-Wesley.

Argyris, C.; & D. A. Schon (1978). *Organizational learning II: Theory, method, and practice*. Reading, MA: Addison-Wesley.

Bar-Tal, D. (2000). *Shared beliefs in a society: Social psychological analysis*. Thousand Oaks, CA: Sage Publications.

Bates, F. L., & Harvey, C. C. (1975). *The structure of social systems*. New York: Gardner Press.

Baxter, B. (1992). *Alienation and authenticity: Some consequences for organized work*. London: Tavistock Publications.

Best, S.; & Kellner, D. (1997). *The postmodern turn*. New York: Guilford Press.

Biddle, B. J.; & E. J. Thomas (Eds.) (1979). *Role theory: Concepts and research*. Huntington, NY: Robert E. Krieger Publishing.

Blanchard, C. A.; & J. W. Lichtenberg (2003). Compromise in career decision making: A test of Gottfredson's theory. *Journal of Vocational Behavior, 62*. 250-271.

Bolman, L. G.; & Deal, T. E. (1997). *Reframing organizations: Artistry, choice, and leadership*. San Francisco: Jossey-Bass.

Breyer, F. J. (2002, October). *Scoring and reporting examinations: PIA equating, FIA cut scores and reporting*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Buckley, W. (1967). *Sociology and modern systems theory*. Englewood Cliffs, NJ: Prentice Hall.

Calhoun, C. (1995). *Critical social theory: Culture, history, and the challenge of difference*. Oxford: Blackwell.

Castells, M. (2000). Materials for an exploratory theory of the network society. *British Journal of Sociology, 51*(1). January/March: 5-24.

Chan, A. (2000). Redirecting critique in postmodern organization studies: The perspective of Foucault. *Organization Studies, 21*(6). 1059-1075.

Charmaz, K. (2000). Looking backward, moving forward: Expanding sociological horizons in the twenty-first century. *Sociological Perspectives, 43*(4). 529-547.

Cilliers, P. (2000). *Complexity & postmodernism: Understanding complex systems*. London: Routledge.

Coalition for Professional Certification (2000). *Requirements for bodies operating certification systems for persons*. http://www.cpc-on-line.net/page/cpcstandards.html accessed on September 21, 2002.

Cohen, A. (1991). Career stage as a moderator of the relationships between organizational commitment and its outcomes: A meta-analysis. *Journal of Occupational Psychology, 64*. 253-268.

Costa, P. T.; R. R. McCrae, & J. Holland (1984). Personality and vocational interests in an adult sample. *Journal of Applied Psychology, 69*(3). 390-400.

Creswell, J. W. (2003). *Research design: Qualitative, quantitative, and mixed methods approaches*. Second edition. Thousand Oaks, CA: Sage Publications.

Crosby, P. B. (1979). *Quality is free*. New York: McGraw-Hill.

Dawis, R. V. (1994). The theory of work adjustment as convergent theory. In Savikas, M.; & R. W. Lent (Eds.) (1994). *Convergence in career development theories: Implications for science and practice*. Palo Alto, CA: CPP Books.

Dawis, R. V. (1996). The theory of work adjustment and person-environment-correspondence counseling. In Brown, D.; & L. Brooks (1996). *Career choice and development*. Third Edition. San Francisco, CA: Jossey-Bass.

Denzin, N. K.; & Y. S. Lincoln (Eds.) (2000). *Handbook of qualitative research*. Second edition. Thousand Oaks, CA: Sage Publications.

Diegelman, N.; & L. M. Sublich (2001). Academic and vocational interests as a function of outcome expectancies in Social Cognitive Career Theory. *Journal of Vocational Behavior, 59*. 394-405.

Eby, L. T.; D. M. Freeman; M. C. Rush; & C. E. Lance (1999). Motivational bases of affective organizational commitment: A partial test of an integrative theoretical model. *Journal of Occupational and Organizational Psychology, 72*. 463-483.

Eckerman, A. C. (1968). A new look at need theory: An extension of Maslow's hierarchy. *Training Development Journal, n*(n). 18-22.

Flaherty, K. E.; & J. M. Pappas (2002). The influence of career stage on job attitudes: Toward a contingency perspective. *Journal of Personal Selling and Sales Management, 22*(3). 135-143.

Ford, G.; & Gibbs, N. E. (1996). *A mature profession of software engineering*. Technical Report CMU/SEI-96-TR-004. Pittsburgh, PA: Software Engineering Institute.

Gemes, K. (2001). Postmodernism's use and abuse of Nietzsche. *Philosophy and Phenomenological Research, 62*(2). March: 337-360.

Gharajedaghi, J. (1999). *Systems thinking: Managing chaos and complexity: A platform for designing business architecture*. Boston: Butterworth-Heinemann.

Gibson, R. S. (2000). Certification of training. In Wise, J. A., & Hopkin, V. D. (Eds.). *Human factors in certification*. Mahwah, N.J. : Lawrence Erlbaum Associates.

Gouws, D. J. (1995). The role concept in career development. In Super, D. E.; & B. Šverko (1995). *Life roles, values, and careers: International findings of the World Importance Study*. San Francisco, CA: Jossey-Bass.

Greenberg, S. (2002). *Continuing competency and renewal*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Greenberg, S.; & M. Zweifel. (2002, October). *Certification renewal: Creating a framework for continuing competence*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Guthrie, J. P.; & C. E. Schwoerer (1996). Older dogs and new tricks: Career stage and self-assessed need for training. *Public Personnel Management, 25*(1). 59-72

Hassan, I. (1987). *The postmodern turn: Essays in postmodern theory and culture*. Cincinnati, OH: Ohio State University Press.

Henrich, J.; & Gil-White, F. J. (2001). The evolution of prestige: Freely conferred deference as a mechanism for enhancing the benefits of cultural transmission. *Evolution and Human Behavior, 22*(3). 165-196.

Herlihy, C. S. (2002, October). *When scoring goes wrong*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Herzberg, F.; B. Mausner; & B. B. Snyderman (1959). *The motivation to work*. Second edition. New York: John Wiley & Sons.

Hesketh, B. (1985). In search of a conceptual framework for vocational psychology. *Journal of Counseling and Development, 64*. 26-30.

Holton, E. (1991). *The new professional: Everything you need to know for a great first year on the job*. Princeton, NJ: Peterson's Guides.

Hunt, J. G.; & J. W. Hill (1969). The new look in motivation theory for organizational research. *Human Organization, 28*(2). 100-109.

Jackson, J. A. (Ed.) (1970). *Professions and professionalization*. London: Cambridge University Press.

Johansson, T. (2000). *Social psychology and modernity*. Buckingham, UK: Open University Press.

Jackson, J. A. (1972). *Role*. Cambridge: Cambridge University Press.

Jude, M. R. (2000). *Hidden impacts: The influence of regulation on the creative individual*. Minneapolis, MN: Walden University.

Julian, K. (2001). Fulfilling a need: Developing computer science staff. *Community College Journal, 71*(2). 48-50.

Katcher, J.; & S. Eubanks (2002). *Examination development*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Katz, D.; & Kahn, R. L. (1966). *The social psychology of organizations*. New York: John Wiley & Sons.

Kegon, R. (1982). *The evolving self: Problem and process in human development*. Cambridge, MA: Harvard University Press.

Knapp, L. G.; C. M. Miller; & C. Reidy. (2002, October). *CBT or pencil and paper: Which delivery options is best for you?* Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Krumboltz, J. D. (1994). Improving career development theory from a social learning perspective. In Savikas, M.; & R. W. Lent (Eds.) (1994). *Convergence in career development theories: Implications for science and practice*. Palo Alto, CA: CPP Books.

Larson, M. S. (1977). *The rise of professionalism: A sociological analysis*. Berkeley, CA: University of California Press.

Leahy, J. (2002, October). *Certification essentials: What every certification sponsor should know*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Lerman, R. I., Riegg, S. K., & Salzman, H. (2001). Community colleges: Trainers or retrainers of information technology workers. *Community College Journal, 71*(6). 41-44.

Liebowitz, J. (Ed.) (1999). *Knowledge management handbook*. Boca Raton, FL: CRC Press

Lopata, H. Z. (Ed.) (1998). *Current research on occupations and professions: Jobs in context: Circles and settings*. Vol. 10. Greenwich, CT: JAI Press.

Lyon, D. (1994). *Postmodernity*. Minneapolis, MN: University of Minnesota Press.

Lyotard, J. F. (1979). *The postmodern condition: A report on knowledge*. Minneapolis, MN: University of Minnesota Press.

Lyotard, J. F. (1993). *The postmodern explained: Correspondence 1982-1985*. Minneapolis, MN: University of Minnesota Press.

Maxwell, J. A. (1996). *Qualitative research design: An interactive approach*. Thousand Oaks, CA: SAGE Publications.

Macdonald, K. M. (1995). *The sociology of the professions*. London: Sage Publications.

Malhatra, Y. (2000). *Knowledge management and virtual organizations*. Hershey, PA: Idea Group Publishing.

McCain, M. (2001). Business approach to credentialing. *Community College Journal, 71*(5). 40-41.

Mead, G. H. (1982). *The individual and the social self: Unpublished work of George Herbert Mead*. D. L. Miller, Ed. Chicago: University of Chicago Press.

Merton, R. K. (1996). *On social structure and science*. Chicago, University of Chicago Press.

Michael, M. (2000). *Reconnecting culture, technology, and nature: From society to heterogeneity*. London: Routledge.

Miles, M. B.; & A. M. Huberman (1994). *Qualitative data analysis: An expanded sourcebook*. Second edition. Thousand Oaks, CA: Sage Publications.

Mink, O. G.; B. P. Mink; E. A. Downes; & K. Q. Owen (1994). *Open organizations: A model for effectiveness, renewal, and intelligent change*. San Francisco, CA: Jossey-Bass.

Morecroft, J. D. W.; & J. D. Sterman (Eds.) (1994). *Modeling for learning organizations*. Portland, OR: Productivity Press.

Murphy, C. M. (2002). *Oncology Nursing Certification Corporation transition to computer based testing 2003*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Nohara-LeClair, M. (2001). A direct assessment of the relation between shared knowledge and communication in a referential communication task. *Language and Speech, 44*(2). 217-236.

Parsons, T. (1954). *Essays in sociological theory*. Revised edition. New York: Free Press.

Pescosolido, B. A.; & Rubin, B. A. (2000). The web of group affiliations revisited: Social life, postmodernism, and sociology. *American Sociological Review, 65* February: 52-76.

Reidy, C. (2002, October). *Commission on dietetic registration transition to computer based testing 1999*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Ritzer, G. (1997). *Postmodern social theory*. New York: McGraw-Hill.

Rosenfeld, M. (2002, October). *Job analysis for credentialing: Some of the 'why' and 'how'*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

Savikas, M.; & R. W. Lent (Eds.) (1994). *Convergence in career development theories: Implications for science and practice*. Palo Alto, CA: CPP Books.

Schiralli, M. (1999). *Constructive postmodernism: Toward renewal in cultural and literary studies*. Westport, CT: Bergin & Garvey.

Schön, D. A. (1986). *Educating the Reflective Practitioner*. San Francisco, CA: Jossey-Bass.

Seidman, S. (1994). *The postmodern turn: New perspectives on social theory*. Cambridge: Cambridge University Press.

Smart, B. (1993). *Postmodernity*. London: Routledge.

Srikantaiah, T. K.; & M. E. D. Koenig (Eds.) (1999). *Knowledge management for the information professional*. American Society for Information Science Monograph. Medford, NJ: Information Today.

Tester. K. (1993). *The life and times of post-modernity*. London: Routledge.

Tönnies, F. (1965). *Community and society*. New York: Harper Torchbooks.

Tuttle, D. L. (2002, October). *Job analysis for AIMR's CFA program*. Proceedings of the 2002 NOCA Certifications Essentials Workshop, Rosemont, Illinois, October 1, 2002. Washington, DC: National Organization for Competency Assurance.

van der Heijden, B. I. J. M. (2002). Individual career initiatives and their influence upon professional expertise development throughout the career. *International Journal of Training and Development, 6*(2). 54-79.

Vollmer, H. M. (Ed.) (1966). *Professionalization*. Englewood Cliffs, NJ: Prentice-Hall.