

**ORGANIZATIONAL PERFORMANCE AND QUALITY MANAGEMENT:  
AN ANALYSIS OF WORKFORCE DEVELOPMENT ORGANIZATIONS IN  
TEXAS**

Applied Research Project

By

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## ABSTRACT

### Research Question

Do workforce development organizations with a commitment to quality achieve higher performance levels than workforce development organizations that do not display the same commitment to quality?

### Purpose

The purpose of this ARP is two-fold. First, the literature on the Quality Movement is reviewed. Second, the link between quality practices and organizational performance of entities funded by the Texas Workforce Commission (TWC) is investigated. The research purpose is explanatory; a formal hypothesis is identified.

### Methodology

Unobtrusive research is conducted in the form of analysis of existing data. The unit of analysis is the workforce development organization, which is funded by TWC. The workforce development organization can be either a Local Workforce Development Board or one of the Board's contractors. Both types of organizations are eligible for membership into the Enterprise. The Enterprise accepts membership applications from workforce development organizations that are interested in promoting quality management and continuous improvement in their organizations. Membership into the Enterprise is voluntary. The Enterprise serves workforce development organizations nation-wide. The initiation of Enterprise membership displays a commitment to quality by the applying organization. For this study, membership to the Enterprise is a proxy for a workforce development organization committed to quality. The population of workforce development organizations is separated into two groups: organizations that belong to the Enterprise and organizations that do not belong to the Enterprise.

Job Training Partnership Act (JTPA) performance is a determinant of Enterprise membership. The workforce development organizations' performance results for Program Year 1997, which began July 1, 1997 and ended June 30, 1998, is used for this study. JTPA performance for a local workforce development area can be tracked to both the Board and its contractor. There are nine JTPA performance standards included in this study. The performance standards are indicators of organizational performance.

Each workforce development organization is provided performance expectations from the Texas Workforce Commission for each of the nine performance measures annually. Two figures can be used to describe any of the nine performance measures: predicted (expected) outcome and actual outcome. For the purpose of this study, the performance measure is manipulated to yield one figure: percent difference. The percent difference is calculated by subtracting the actual outcome from the predicted outcome and then dividing the difference by the predicted value  $[(\text{actual} - \text{predicted})/\text{predicted}]$ . A tenth variable, derived by adding the percent differences of the nine manipulated

performance measures, is also included. The mean percent difference of each of the performance measures is compared between the Enterprise organizations and the non-Enterprise organizations.

### Findings

The literature supports the theoretical framework that organizations with a commitment to quality achieve higher performance than organizations that do not display the same degree of quality. The empirical evidence also mildly supports this study's hypothesis. Approximately one-third of the performance outcomes demonstrate administrative significance ( $\geq 10\%$ ) that Enterprise members out-perform non-Enterprise organizations. Overall, eight of the ten dependent variables demonstrate a positive relationship between organizational performance and quality management.

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## **Chapter 1: INTRODUCTION**

### **Quality Management**

Since the beginning of the Public Administration movement, there have been initiatives to bring accountability to government funded programs. Over the last decade a call for accountability has prompted the public sector to adopt private sector quality initiatives. Quality Management<sup>1</sup> movements have been initiated in the private sector in the hopes of improving performance or profitability (Gale, 1994, p. 301). The quality movement in the private sector has led to enhanced competition among businesses and increased profit margins for those businesses that use practices associated with the quality movement.

Various tools have been developed or initiated to assist government-funded organizations in their quest for quality. Political leaders, such as the President, Vice President, and Congress have pushed for quality practices in the public sector. Two examples of such programs are the initiation of the National Performance Review (NPR) and the Government Results and Performance Act (GPRA). The Enterprise, Simply Better!, and PEPNet are three examples of public sector quality initiatives dedicated to promoting continuous improvement in workforce development organizations, such as the Texas Workforce Commission (TWC) and the numerous workforce development organizations it (TWC) funds.

### **Performance Defined**

While the private sector measures performance through customer satisfaction and profit margins as they relate to the production and sales of a product, the public sector, which is not in

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<sup>1</sup> Refer to Chapter 2, pages 14-21, for a complete discuss of the Quality Movement.

the business to produce a tangible product, measures the performance of a service. How is a service measured? As the federal government devolves programs to the state level, performance standards are created to ensure continuous improvement and accountability of the programs. Further devolvement to the local level by the state level re-emphasizes the need for accountability of established, contracted performance standards. The expected service outcomes depend on the type of program being administered. For example, in a Texas Workforce Commission administered workforce development training program such as the Job Training Partnership Act (JTPA), an expected outcome might be the number of terminated participants who enter employment as a result of successfully completing the sponsored training (i.e. service). Not only is meeting or exceeding a federal or state performance standard a desired expectation for a workforce development organization but also meeting the needs of the customers.

### **Statement Of Research Purpose**

The Texas State government is concerned about the performance of its agencies and programs, such as the programs of the Texas Workforce Commission (TWC). TWC encourages the use of quality management principles associated with the Enterprise<sup>2</sup>. The Enterprise quality practices were adopted from the private sector. These principles (from the private sector) usually apply to organizational processes and are also linked to organizational performance. The link between Quality Management and performance is well established in the private sector. Private sector organizations with a commitment to quality have experienced increased performance, such as Xerox (Gehani, 1993, p. 38). With that in mind, do public sector organizations with a commitment to quality meet and/or exceed established, contracted performance

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<sup>2</sup> For more information on The Enterprise, refer to Chapter 3, pages 47-49.

standards? This study examines the link between quality practices and performance by organizations that are funded by the Texas Workforce Commission.

The purpose of this paper is to 1) review the literature on the Quality Movement and 2) investigate the link between quality practices and performance for organizations funded by the Texas Workforce Commission. The research purpose is explanatory; a formal hypothesis is identified.

## **Overview of Chapters**

Chapter 2 begins the exploration for a relationship between quality management and organizational performance. The chapter identifies the characteristics of and keys to achieving quality. The chapter provides a brief history of the quality movement and related initiatives. Quality movements in the private sector are discussed as well as the awards associated with quality initiatives. Finally, the chapter concludes with the quality movement in public sector organizations.

Chapter 3 sets the stage for the subject of this applied research project and presents the conceptual framework. Quality management in workforce development organizations in Texas is examined. Federal and state legislation that affects workforce development is discussed. The current local governance structure is described; the discussion details devolution of TWC administered workforce development programs to twenty-eight local workforce development boards. A description of The Enterprise, an organization dedicated to providing assistance to organizations that have committed to quality, is included in Chapter 3. The chapter concludes with an explanation of the hypothesis (quality practices influence performance) that frames the empirical portion of this paper.

The conceptual framework related to quality management and organizational performance is operationalized in Chapter 4. The conceptual framework is explanatory; a formal hypothesis is used in this applied research project. This study uses the analysis of existing data to test for a relationship between quality management and organizational performance. The variables used in the analysis are described in detail. The population studied is the workforce development organizations in Texas. The population is separated into two groups: those organizations that are members of the Enterprise and those organizations that are not members of the Enterprise. The percent difference between actual and predicted Job Training Partnership Act (JTPA) performance for each of the nine (9) federal performance standards and state goals by each workforce development organization in Texas for Program Year 1997 (July 1, 1997 through June 30, 1998) serve as the dependent variables. Combined, these nine performance standards represent organizational performance.

Chapter 5 begins with the use of descriptive statistics, which is intended to demonstrate a comparison of means, to determine whether there is a relationship between quality management and performance. The results of the descriptive statistics follow and are displayed in a table, Comparison of Means, comparing each of the organizational groups (members and non-members of the Enterprise) to the related dependent variables.

The APR concludes with Chapter 6. This chapter summarizes the research project as it relates to the hypothesis. The relevance of the research today and future research possibilities are discussed. Items that could have been approached differently are explained. Methods of improvement are also discussed.

## Chapter 2: THE QUALITY MOVEMENT

Quality is what every American citizen deserves. Quality is what every American expects. Quality is what every American demands of our public servants.

Constance Berry Newman, Director  
Office of Personnel Management  
(USOPM, 1992, p. 1)

### Purpose of Literature Review

Researchers and quality examiners<sup>3</sup> have found that quality initiatives in private organizations increase productivity or performance. Private sector organizations committed to quality have improved both their profitability and customer satisfaction. Public sector organizations may not share the same desired outcome as their private sector counterpart, but public sector organizations do worry about effective and efficient service delivery. Based on this premise, public sector organizations that implement quality initiatives should see an increase in their organizational performance. Quality and performance are expected to be directly related.

Ms. Newman makes a lofty assumption (above) regarding what the American citizen deserves, expects, and demands. But in researching the quality movement, specifically as it relates to public sector organizations, it appears that this might be a reasonably accurate account. The **purpose** of this literature review is three-fold. First, the characteristics of quality are identified as are keys to achieving quality. Because the quality movement predominates in the private sector, there is a discussion of why quality is important to businesses. Finally, the quality movement in the public sector is addressed, including management tools and awards specific to

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<sup>3</sup> Quality Examiners include Frederick W. Taylor, G.S. Radford, Walter Shewhart, Harold Dodge, Harry Romig, W. Edwards Deming, Joseph Juran, Armand V. Feigenbaum, Kaoru Ishikawa, Genichi Taguchi, Philip Crosby, and David Kearns.

public organizations.

## **What is Quality?**

More than a decade ago, Phil Crosby noted that,

...quality has much in common with sex. Everyone is for it. (Under certain conditions, of course.) Everyone feels they understand it. (Even though they would not want to explain it.) Everyone thinks execution is only a matter of following natural inclinations. (After all, we do get along somehow.) And, of course, most people feel that all problems in these areas are caused by other people. (If only they would take time to do their things right) (Gehani, 1993, p. 41).

One thing that can be agreed upon about the literature on the quality movement is that quality is hard to define. It is not simply that quality is difficult to define; it is defined differently by people who occupy different positions, each of whom may have a different agenda (Johnson, 1998, p. 310). Curt Reimann<sup>4</sup> says that a meaningful definition of quality is simply not possible (Hart and Bogan, 1992, p. 4). Most researchers choose not to define quality but to describe characteristics of "quality." "Quality is characteristic of thought and statement that is recognized by a non-thinking process. Because definitions are a product of rigid formal thinking, quality cannot be defined (Shields, 1998, p. 2).

### *Characteristics of Quality*

The leaders of any organization that want to achieve quality should begin by agreeing on an initial working definition of what it is (Glasser, 1992, p. 177). Glasser adds that quality is always a product of warm, caring human relationships (1992, p. 177). A characteristic of quality is that it is never destructive either to individuals or to society (Glasser, 1992, p. 177).

Quality is the best that everyone in the organization, both separately and together, can achieve at any particular time (Glasser, 1992, p.177).

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<sup>4</sup> Curt Reimann, Director of the Bureau of Standard's Quality Council, and his staff developed the criteria for the Malcolm Baldrige National Quality Award.

One interesting portrayal of quality is that which defines two seemingly conflicting "realities, one of immediate artistic appearance (romantic) and one of underlying scientific explanation (classic)" (Shields, 1998, p. 2). Romantic reality is primarily creative, imaginative, inspirational, and intuitive; feelings rather than fact predominate (Shields, 1998, p. 3). The classic view of reality relies on reason and evidence, and evidence is often collected as quantitative data (Shields, 1998, p. 3).

Another researcher identifies the following typical quality service characteristics. The characteristics are timeliness, appropriateness of help, pleasantness, courteousness, convenience (location, hours of operation, accessibility of customer service), adequacy of information about service available, condition and safety of facilities, customer satisfaction with various service characteristics, and customer satisfaction with results of service (Hatry, 1998, p. 9). Xerox executive, David Kearns concurs with these characteristics of quality service when he "defined quality as 'meeting the requirements of customers' and urged employees to conduct extensive conversations with its unhappy customers" (Gehani, 1993, p. 38). Kearns believes that "customers are the reason why Xerox exists and the reason Xerox men and women come to work each day" (Gehani, 1993, p. 38).

### *Keys to Quality*

As mentioned previously, quality should be a product of warm, caring human relationships (Glasser, 1992, p. 177). That sentiment is reiterated as "Pirsig<sup>5</sup> points out that the notion of Quality is deeply connected to caring because Quality and caring are internal and external aspects of the same thing" (as cited in Shields, 1998, p. 4).

Another key to quality is the notion of empowerment. Some organization theorists

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<sup>5</sup>In *Zen and the Art of Motorcycle Maintenance*, Robert Pirsig (1974, 49) seeks the meaning of Quality.

describe empowerment as a "psychological mindset," which comprises several dimensions: the fit between one's job and personal values; the belief that one has the necessary knowledge, skills, and so forth, to perform a job or task well; and the belief that one can make a difference with respect to organizational outcomes (Connor, 1997, p. 504). The basic idea is that individual contributions to accomplishing organizational purposes are enhanced through systematic and sustained cooperation with others (Connor, 1997, p. 504).

The results of a program for improvement of quality depend highly on the commitment of the employees (Lam, 1997, p. 1155). Lam discovered that to ensure the employees' commitment to the improvement of quality and compliance with the new policies, managers needed to understand the strategies that influence the compliance of workers. Only then can policies for quality be formulated that are effective in improving performance (Lam, 1997, p. 1155).

### ***Keys to Achieving Quality***

Members of the quality movement make two sets of assumptions that are of single importance. First, despite a strong emphasis on statistical control procedures, all versions of the quality movement hold that people are critical to accomplishing quality objectives (Connor, 1997, p. 502). Second, the quality movement is tied to the assumption that people can be motivated to work energetically and intelligently toward achieving organizational purposes (Conner, 1997, p. 502).

According to an informal survey conducted by Conner (1997), the following beliefs lie at the heart of the quality movement:

- People are innately good;
- People want to experience meaning in their work;
- People experience meaning when they make a significant and worthwhile contribution to the organization's purpose;
- People respond positively to a culture of trust;

- Human contribution is maximized through team, rather than individual, effort; therefore, teams are central to quality; and
- People do what they care about (Connor, 1997, p. 503).

In brief, the human essence of the quality movement is clear: quality assumes that people are important, and that they want to contribute (Connor, 1997, p. 503). As the history of the quality movement is examined, it becomes evident that Connor's conclusion is legitimate. Different quality movements have focused on different aspects or dimensions of quality (Hart and Bogan, 1992, p. 4).

### **The Quality Movement**

A number of quality movements have been identified in the research of quality initiatives. The Original Frontier<sup>6</sup> or Inspected Quality is associated with Frederick W. Taylor, the father of scientific management and an engineer by training (Gehani, 1993, p. 33). In 1911, Taylor innovated the time-and-motion study. He proposed that by using a systematic analysis, any operation could be divided into simpler tasks. Each of these tasks could be performed by a pre-determined "one best way." Workers were assigned these simplified and standardized tasks, while supervisors and managers planned and inspected their performance. Critics contend that Taylor's fragmentation of these work practices or tasks caused the decline of United States industrial competitiveness (Gehani, 1993, p. 33). Frank Gilbreth who was an advocate for the time-motion productivity study shared Taylor's belief that every business behavior was intrinsically perfectible through the application of testable work methods (Hart and Bogan, 1992, p. 5).

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<sup>6</sup> Gehani developed a Quality Value-Chain framework that integrates each frontier of quality. He also refers to this framework as the Nine Lives of Global Quality Movement. (1993)

During this same era; quality control was considered a dimension of cost control, with an emphasis on eliminating waste (Hart and Bogan, 1992, p. 5). G. S. Radford<sup>7</sup> believed that it was the inspector's job to examine, weigh, and measure every item prior to its being loaded on a truck for shipment (Hart and Bogan, 1992, p. 5).

Much the same way Radford believed that inspectors were responsible for checking every item, Walter Shewhart<sup>8</sup> maintained that workers on the factory floor could monitor the quality of their own work by visually plotting variations of output (Hart and Bogan, 1992, p. 6). Shewart came up with the concept of statistical process control (SPC); SPC controls variability between like things (products. (Hart and Bogan, 1992, p. 6). As workers monitor the quality of their work and observe variations, too wide or too frequent, the workers could intervene and do whatever necessary to control the variation and ensure quality (Hart and Bogan, 1992, p. 6).

Harold Dodge and Harry Romig, also part of the Inspected Quality phase, used sampling techniques as an approach to inspection (Hart and Bogan, 1992, p. 6). Sampling allowed workers to measure representative samples of manufactured items instead of spending too many resources measuring every manufactured item as Radford followers may have done (Hart and Bogan, 1992, p. 6).

The Original Frontier is best associated with Pirsig's (as cited in Shields, 1998) classic notions of quality. Lam's (1997. p. 1155) contention that the improvement of quality and compliance of new policies improves performance is also evident here. While the Original Frontier focused on standardizing tasks and maintaining the manager-subordinate hierarchy, the Deming Frontier broadened the horizon and shifted to participatory management.

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<sup>7</sup> Radford authored the first important book on quality, *The Control of Quality in Manufacturing*, in 1922. It established inspection as the bulwark of a company's quality control efforts (Hart and Bogan, 1992).

<sup>8</sup> Shewart wrote *Economrc Control of Quality of Manufactured Product* in 1931. It gave the "fledging" quality profession a foothold in scientific method. He, along with Deming, Dodge, Romig, Edwards, and Juran fashioned the modern-day discipline of statistical quality control (SQC) (Hart and Bogan, 1992).

The Deming Frontier or Process-Control Integrated Quality was led by Dr. W. Edwards Deming<sup>9</sup> (Gehani, 1993, p. 34). The Deming Frontier showcased statistics as the first tool to be used to quantify and improve quality practices. Deming, a statistician with a Ph.D. in mathematical physics from Yale, was a leader in applying statistics to quality improvement initiatives. Deming also believed that active management participation and leadership was needed to reduce variations in process operations (Gehani, 1993, p. 34).

The Deming Frontier displays both the romantic and classic views of quality. The use of statistics to quantify and improve quality practices is indicative of the classic view; whereas, the engagement of management to improve process operations requires inspirational and creative leadership resembling the romantic notion of quality. The Deming Frontier demonstrated a balance of romantic and classic notions of quality just as the Juran Frontier.

The Juran Frontier or Company-Wide Integrated Quality is analogous with Joseph Juran's<sup>10</sup> perspective (Gehani, 1993, p. 35). In the early 1950's, Juran first saw quality as an integration issue and approached quality from a perspective of cross-functional integration. He rejected the more traditional Tayloristic practice of specialization, differentiation, and delegation of responsibility for quality to a quality control department. He advocated hands-on leadership and involvement by senior management. He stressed that quality breakthroughs cannot be brought about by the operational workforce, but must be introduced by upper management (Gehani, 1993, p. 35). Juran advocated that the principle of quality ought not to be solely an expense but as an investment in profitability (Hart and Bogan, 1992, p. 7). Care in reducing

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<sup>9</sup> Japan's Deming Prize for Quality was named after Deming in 1951. He is considered the most famous guru of statistical process controls. He is also well known for the Fourteen Points, a broad set of simple, but profound quality principles; the Seven Deadly Diseases, common obstacles to quality improvement; and the PDCA (Plan, Do, Check, Act) cycle, a systematic approach to problem solving (Hart and Bogan, 1992).

<sup>10</sup> Juran published *The Quality Control Handbook* in 1951.

avoidable quality losses had the potential of saving as much as \$1000 per worker per year (Hart and Bogan, 1992, p. 7).

Connor's survey results (refer to page 13 and 14) regarding the beliefs at the heart of the quality movement are closely associated with the Juran Frontier, specifically that human contribution is maximized through team, rather than individual, effort; that teams are central to quality; and that people experience meaning when they make a significant and worthwhile contribution to the organization's purpose (1997, p. 503). Juran's focus on integration indicates that both romantic and classic notions of quality are a part of the Juran Frontier. In keeping with the integration of the Juan Frontier, the Feigenbaum Frontier builds on the Juran movement distributing the responsibility of quality practices to both management and front-line staff.

Armand V. Feigenbaum<sup>11</sup> is responsible for the Feigenbaum Frontier or Total Quality Control (Gehani, 1993, p. 35). In 1951, he originated the concept of total quality control (TQC) while still a doctoral student at the Massachusetts Institute of Technology (MIT) (Hart and Bogan, 1992, p. 8; Gehani, 1993, p. 35). Feigenbaum elaborated that

...total quality control's organization-wide impact involves the managerial and technical implementation of customer-oriented quality activities as a prime responsibility or general management and the main-line operations of marketing, engineering, production, industrial relations, finance, and service as well as of the quality-control function itself (Gehani, 1993, p. 35).

The Feigenbaum Frontier incorporates the cross-functional integration of Juran and the participatory management of Deming. The romantic-classic notions of quality are evident in this Frontier.

The Ishikawa Frontier or Prevention Integrated Quality is associated with Kaoru Ishikawa (Gehani, 1993, p. 36). He was the late president of the Music Institute of

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<sup>11</sup> Hart and Bogan consider Feigenbaum's work central to what Baldrige would become 40 years later. He believed that quality was too central to a company's identity to be entrusted to an isolated corps of inspectors. For a total response, every single employee and vendor had to be brought into the process.

Technology, located on the outskirts of Tokyo. Ishikawa shifted Japan's quality focus away from monitoring and control of process operations to prevention of defective goods in the first place. Ishikawa believed that:

Quality begins with education and ends with education. To prevent production of defective goods (and save misuse of materials and manpower), there is a constant need to collect more information and develop better understanding about processes and their outcomes (Gehani, 1993, p 36).

To implement and map critical issues related to "Total Quality Control," Ishikawa popularized the use of the cause-and-effect or fish-bone diagram that is now often referred to as the Ishikawa diagram (Gehani, 1993, p. 36). In a typical cause-and-effect diagram, all the major and supporting causes can be systematically identified for each quality-related problem. The technique was used with a Pareto diagram, which classifies relative magnitudes of the effects of different factors contributing to a quality problem. When used together, these two techniques help identify the relative significance of major and minor factors in a quality problem (Gehani, 1993, p. 36).

The systematic approach taken by Ishikawa appears Tayloristic but encompasses the integration evident in the **Juran** movement and the leadership seen in the Deming Frontier. The Ishikawa Frontier seems to take a more classical approach than romantic notion of quality. The Ichikawa Frontier led the way for the Taguchi Frontier.

The Taguchi Frontier or Design Integrated Quality is associated with Genichi Taguchi (Gehani, 1993, p. 36). Taguchi was a Tokyo-based Japanese consultant who stressed "robust quality" of design; he integrated product quality with design. The robustness of design implied that given normal variations in process operations, the product was less likely to fail any criteria for acceptable quality. Taguchi realized that theoretically there were a large number of possible permutations and combinations for operating even a simple process with few process variables.

For example, for a simple semiconductor production process with nine variables, if only one process variable changed at a time, more than 6,000 sets of alternate experiments were required to compile all necessary experiments to develop information needed to arrive at optimum processing conditions. Using more sophisticated statistical procedures, Taguchi designed experiments by changing multiple variables simultaneously. With his approach, a much smaller number of experiments resulted in an optimal process. What used to take months of experimentation now only took a few weeks (Gehani, 1993, p. 36).

Taylor, Deming, Feigenbaum, Ishikawa, and Taguchi all had one thing in common; none of them focused on the cost of quality. They all focused on improving performance without the mention or consideration of the cost of that improvement. The Crosby Frontier did what the others did not.

Philip Crosby<sup>12</sup> led the way for the Crosby Frontier or Cost Integrated Quality. As senior managers became more involved in the quality movement, the cost of the quality became a frequently debated topic. Crosby, the author of the 1979 bestseller, *Quality is Free*, popularized the concept of cost of quality and the "price of nonconformance" (Gehani, 1993, p. 37, Hart and Bogan, 1992, p. 8). Crosby's approach is driven by the principle that quality is conformance to requirements and by his battle cry, "zero defects" (Hart and Bogan, 1992, p. 8).

The 'final' frontier is a compilation of all of the above frontiers. The Keams Frontier came to be due to a sharp decline in customer satisfaction and organizational bottom line or profit. The Keams Frontier or Market Competition Integrated Quality is associated with David Keams (Gehani, 1993, p. 38). In the 1970s, Keams, president of Xerox Corporation, and an ex-

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<sup>12</sup> Crosby coined the phrase "Quality is Free." His conclusion was that the costs of good quality, though real, evaporate over time, as they are enveloped by the very real and very measurable benefits of quality improvement. (Hart and Bogan, 1992)

IBM marketing man, was facing major organizational hurdles in trying to rejuvenate his organization. Xerox, which pioneered xerography technology in March 1960, had held dominant an undisputed market share for more than 15 years. As a result, Xerox also became complacent regarding customers' requirements and complaints, and neglected potential threats of entry by new competitors. Xerox's reluctant entry into the quality arena was finally forced by a sharp erosion of its long-held market share in xerography, which was steadily eroded by new entrants from Japan (Gehani, 1993, p. 38).

In 1975, as a result of an injury **determination** made by the Federal Trade Commission, Xerox was forced to open and share its technological know-how and patents for its closely held xerography technology (Gehani, 1993, p. 38). Xerox experienced a steady loss of its competitive edge; their share of the US copier revenues plummeted from 96% in 1970 to 46% in 1980 and was still falling (Gehani, 1993, p. 38). When Kearns joined Xerox in 1977, he tried many ways to revitalize its marketing organization (Gehani, 1993, p. 38). He finally initiated a "Leadership through Quality" program in 1982 which turned around the ailing company (Gehani, 1993, p. 38). This initiative was facilitated through Xerox's strategic alliance with Fuji Xerox, which provided Kearns with an insider's view of current quality-related practices in Japan (Gehani, 1993, p. 38).

In 1989, Xerox Business Products & Systems, based in Rochester, New York, became one of two winners of the Malcolm **Baldrige** National Quality Award in the "large company" category. Kearns stated then that, "We are probably the first American company in an industry targeted by the Japanese to regain market share without the aid of tariffs or other **governmental help**" (Gehani, 1993, p. 39).

As the quality movement has grown, defining quality has only become more difficult (Hart and **Bogan**, 1992, p. 4). From Taylor's standardization of a single task to Ichigawa's systematic approach and from Deming's participatory management to **Juran's** cross-functional integration, the quality movement continues to grow. Although quality is not defined in any of the frontiers described above, each movement displays many of the quality characteristics previously described. The romantic and classic notions of quality are evident in the quality frontiers; the romantic and classic characteristics appear both together and separately in these frontiers.

The authors and researchers referred to in the discussion of the quality frontiers link quality to a larger production process as it applies to a product (such as cars, vacuum cleaners, televisions, frozen peas, etc.) that has come off an assembly line. The products are often uniform within a make and model. This underlying context may or may not make sense in a workforce development program, but as the quality movement has evolved, customer satisfaction, as seen in the **Kearns** frontier becomes key and organizational outcomes, increased profits or increased efficiency and effectiveness of service become a **fundamental** focus.

The success of each frontier is also dependent on the notion that quality assumes that people are important, and they want to contribute (**Connor**, 1997, p. 503). Quality movements, like Total Quality Management (TQM), rely on the premise that people respond positively to a culture of trust and do what they care about as indicated in the results of **Connor's** (1997) survey (refer to page 13 and 14). This movement extends beyond the "product" focused quality prescription identified above.

### *Total Quality Management (TQM)*

In a TQM organization, top management is responsible for initiating and supporting a vision of a total quality culture. This vision is clarified and communicated to the remainder of the organization in multiple ways. Systems that allow upward and lateral communications are developed. TQM training is provided to all employees, and top management shows active support for such training. Employee involvement or participation programs are in place. Autonomous work groups are not required, but processes that bring multiple perspectives to bear on quality issues are imperative. Employees are empowered to make quality-based decisions at their discretion.

Published documents about TQM explicitly drew on the ideas of Deming, Juran, and Ishikawa. The TQM strategy for achieving its outcomes is rooted in four interlocked assumptions about quality, people, organizations, and the role of senior management (Gummer, 1996, p. 77). Quality is assumed to be less costly to an organization than is poor workmanship (Gummer, 1996, p. 77). People or employers naturally care about the quality of work they do and will take initiatives to improve it, so long as they are provided the tools and training that are needed for quality improvement, and management pays attention to their ideas (Glasser, 1992, p. 177; Connor, 1997, p. 503; Gummer, 1996, p. 77). Organizations are systems of highly interdependent parts. Deming and Juran are insistent that cross-functional problems must be addressed collectively by representatives of all relevant functions (Gummer, 1996, p. 78). The fourth assumption is that senior management is responsible for quality. Because senior managers create the organizational systems that determine how products and services are designed and produced, the quality-improvement process must begin with management's own commitment to total quality (Gummer, 1996, p. 78).

TQM strategies have long been offered as a means to upgrade organization behavior (Smergut, 1998, p. 76). According to Smergut, these strategies are rooted in an organization's ability to learn and define their own learning disabilities (1998, p. 76). Given TQM's premise that 90% of organization problems are rooted in systems and not in people, it is incumbent upon organizations to incorporate their people in the design of effective systems (Smergut, 1998, p. 76).

There is a small but growing literature which suggests that TQM, also referred to as "Continuous Quality Improvement" (CQI) or "Performance Improvement" (PI), is becoming accepted as the preferred approach to organizing and operating both public and private human service organizations (Boettcher, 1998, p. 41). It would appear that there is much in the TQM movement that would be attractive to human service administrators and personnel (Boettcher, 1998, p. 42). Boettcher contends that that the purpose of any human service organization, whether public or private, is to meet the needs of the clients who are served by the organization (Boettcher, 1998, p. 42). He adds that employees of human service organizations (often social workers), if given the choice, would prefer to work in an organization characterized by patterns of cooperation and collaboration among workers and staff, management and clientele, rather than in organizations whose patterns of interaction are characterized by competition, conflict, gamesmanship, and bureaucratic guerilla warfare (Boettcher, 1998, p. 42).

### ***Other Quality Initiatives***

Besides the various frontiers of Quality previously mentioned and TQM, quality circles have also played an important role in the quality movement. But what are quality circles? Quality circles (QC) are voluntary-problem solving groups of employees (from the same work group) that meet once every one or two weeks during one hour of work time (McNeely, 1997, p.

65). Members identify, analyze, and solve work-related problems in their occupational area. QC members are trained by a QC facilitator in public speaking and specific problem-solving techniques, include brainstorming, pareto analysis, stratification analysis, and survey techniques (McNeely, 1997, p. 65).

McNeely believes that QCs have the potential to enhance worker's performance and address needs while fostering feelings of accomplishment, job satisfaction, and satisfaction with supervision (McNeely, 1997, p. 65). QCs also create a formal mechanism by which employees provide input, receive praise, and are afforded opportunities to solve problems associated with poor working conditions and processes (McNeely, 1997, p. 66).

Unfortunately, QCs are difficult to implement and can be implemented successfully only under certain conditions. They also require time, and they require continuity of membership. Finally, according to McNeely, QCs are more difficult to operate in human service settings than in industrial settings (1997, p. 69).

As the many phases of the quality movement are tracked, it is evident that different quality movements have focused on different aspects or dimensions of quality (Hart and Bogan, 1992, p. 4). The successive frontiers of quality sought bigger challenges by attempting to integrate domains farther removed from core production or operational activities of an organization (Gehani, 1993, p. 29). Steeples agrees; only by integrating quality in all processes, all systems, and all practices can quality be optimized (1992, p. 7). By systematically preventing problems, products and services can be delivered at lower costs and at higher levels of satisfaction (Steeple, 1992, p. 7). As a result, the needs of public and private sector organizations are satisfied.

## **Quality in Private Sector Organizations**

So why the focus on quality in the private sector? The United States (US) economy dominated the post World War II era, and demand for our consumer products grew rapidly during the 1950s and 1960s (Steeple, 1992, p. 3). For a while, US products set the standards of quality. American big business was preoccupied with issues that threatened quality such as efficiency over effectiveness, price over value, and economies of scale (Steeple, 1992, p. 3). Until the Arab oil embargo of 1972, and the sudden emergence of Japan as a fierce competitor in the 1980s, the US system of production had existed in a kind of noncompetitive vacuum (Hart and Bogan, 1992, p. 8).

The intensified competition of the 1970s and 1980s took American big business by surprise (Hart and Bogan, 1992, p. 9). As the quality of goods made in the US declined, consumers lost confidence in American products and purchasing of American-made products decreased (Steeple, 1992, p. 3). In 1978, fewer than four in ten US consumers said quality was as important as price in their purchases; ten years later that percentage doubled (Steeple, 1992, p. 7). Although American companies had improved over their own quality benchmarks since the complacent 1950s and 1960s, it was evident that the American companies had fallen behind when compared to the intense culture of continuous improvement of the Japanese companies (Hart and Bogan, 1992, p. 9). The lesson learned from this complacency was that quality was something to be done before and during the making of a product or the delivery of a service, not afterward (Hart and Bogan, 1992, p. 8).

### ***Does Quality drive the Bottom Line?***

Gale in *Managing Customer Value* believes that strong evidence is needed that superior quality drives the bottom line and creates shareholder value to convince skeptics about the

effectiveness of TQM, market-perceived quality, and customer value (1992, p. 166). There is only one reliable way to produce such evidence. Reliable measures of quality, profitability, and shareholder value over a considerable time period for a large number of businesses in many different industries and markets are needed (Gale, 1994, p. 301). Evidence to prove that quality and profitability are correlated would then exist. Strong evidence demonstrates that high-quality businesses in the real world achieve price premiums and increase their market shares (Gale, 1994, p. 301).

"Strengthening America's competitiveness" is not nearly as compelling to most chief executives as the opportunity to protect the jobs of their employees (and their own jobs as well) and achieve bottom line improvements (Gale, 1994, p. 320). A thoughtful company can develop standardized **metrics** for market perceived quality, price, and customer value that facilitate communication, quality improvement, and competitive advantage, as well as research insights, across groups of businesses and entire corporations (Gale, 1994, p. 320).

Moreover, quality management stresses prevention over remediation (Boettcher, 1998, p. 42, Hart and Bogan, 1992, p. 8). This means that we should build quality into our service delivery systems through the continuous correction of mistakes which may be expressed, for example, as customer dissatisfactions, aborted service plans, or unsatisfactory outcomes (Boettcher, 1998, p. 42). It is said to be more cost-effective in the long run to devise, design, and continuously improve services and programs which prevent the occurrence of social dysfunctioning, instead of trying to expand resources to correct instances of breakdown and malfunctioning in human systems (Boettcher, 1998, p. 42).

### *Quality Management Tools and Recognition*

The quality movement in the United States has developed in four stages (Gale, 1994, p. 4). The first stage or conformance quality stage was the entire period prior to the introduction of the Malcolm Baldrige National Quality Award. The second stage was the customer satisfaction stage with its customer oriented judging criteria. The third stage is the market perceived quality and value versus competitors stage. This stage focuses on the achievement of the Malcolm Baldrige Criteria. The fourth stage is customer value management; it builds on the learning of the first three steps and enables organizations to understand and think about their strategies and their roles in society better than they have in the past. Many organizations today are just entering the third stage; only a handful are ready to enter the fourth (Gale, 1994, p. 4).

As Gale notes, many private sector organizations are just entering the stage that focuses on the achievement of the Baldrige criteria. The development of these criteria formed the basis of the Malcolm Baldrige National Quality Award.

### *Malcolm Baldrige National Quality Award*

Would you believe that a Chemist is responsible for the Malcolm Baldrige Criteria for Performance Excellence and the Malcolm Baldrige National Quality Award? Curl Reimann, a Chemist, spent most of his career in Gaithersburg, Maryland, at the National Bureau of Standards and its successor, The National Institute of Standards and Technology (NIST) (Gale, 1994, p. 3). He did not have much business experience, but he did not lack vision. According to Gale (1994, p. 3), no one, in the decades since World War II, has done more to advance US management thinking than Reimann. Reimann deserves primary credit for the success of the Malcolm Baldrige National Quality Award. In the early 1980s, various groups of industry and government leaders began looking at the seriousness of American's declining position in the

global marketplace (Steeple, 1992, p. 9). After a September, 1983 White House Conference on Productivity, an April 1984 report called for annually awarding a National Productivity Achievement Medal (Steeple, 1992, p. 9).

"We have to encourage American executives to get out of their boardrooms and onto the factory floor to learn how their products are made and how they can be made better<sup>13</sup>" (Steeple, 1992, p. 9). In 1986, Malcolm Baldrige, Reagan's Secretary of Commerce and an advocate of a National Quality award for Business, died suddenly in a fall from a horse (Gale, 1994, p. 3). The Bureau of Standards promised to give the first award in Baldrige's memory before the Reagan administration left office (Gale, 1994, p. 3). As a result, the administration threw its whole support behind the idea, and Congress approved it in the summer of 1987 (Gale, 1994, p. 3). President Reagan signed the Malcolm Baldrige National Quality Improvement Act of 1987 (Pub L 100-107) on August 20, 1987. The Act established the Malcolm Baldrige National Quality Award<sup>14</sup> (Fisher, 1994, p. 5).

The purpose of the award was three-fold. The Award would promote quality awareness and practices in US companies. It would recognize quality achievements of US companies, and the Award would publicize successful quality strategies and programs (Fisher, 1994, p. 5). As many as two awards may be given in each of the three eligibility categories: manufacturing and service companies and small businesses. It is targeted at for-profit businesses, but government may use the award criteria in their quest for continuous self-improvement (Fisher, 1994, p. 7).

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<sup>13</sup> Spoken by Malcolm Baldrige, Secretary of Commerce, 1981-1987.

<sup>14</sup> Since its introduction (Malcolm Baldrige Award), requests for applications quadrupled from 12,000 in 1988 to 51,000 in 1989, and again tripled to 180,000 in 1990. (Gehani, 1993, p. 29) Some past winners of the National Quality Award include AT&T Network Systems, AT&T Universal Card Services, Texas Instruments, Inc-Defense Systems and Electronics Group, The Ritz Carlton Hotel Company, Cadillac Motor Car Co, Federal Express Corp, IBM Rochester, and Xerox Business Products and Systems.

Under the Act, the Secretary of Commerce and the NIST are given responsibilities to develop and manage the Award with cooperation and financial support from the private sector (Fisher, 1994, p. 6). With this added responsibility and in his new position as head of the NIST's Quality Council, Reimann was chosen to develop ways to define quality to select companies that really achieved it, and to present the first awards, all within 17 months (Gale, 1994, p. 3).

In 1987, quality advocates were divided into factions supporting competing gurus: W. Edwards Deming, J.M. Juran, Philip Crosby, and others (Gale, 1994, p. 3). Reimann knew that, unfortunately, companies could achieve quality as any of the gurus defined it, yet still fail to produce a product that would win and keep customers (Gale, 1994, p. 3). Reimann and his committee defined quality in a more complete way than anyone had up to that time. According to Gale, Reimann not only made his award highly sought after; he also made it easier for US companies to deliver quality and value their customers would recognize and delight in (1994, p. 4).

Are leaders of private sector organizations convinced that there is only one reliable way to produce evidence that superior quality drives the bottom line and creates shareholder value? Gale says they are convinced of this (1994, p. 301). Reliable measures of quality, profitability, and shareholder value over a considerable time period for a large number of businesses in many different industries and markets are needed. Once these measures are established, it would be possible to show that quality and profitability are correlated (Gale, 1994, p. 301). Reimann and staff set out to establish those measures. The Baldrige criteria offers a number of important new dimensions that are essential for a broad management process (Mahoney and Thor, 1994, p. 73).

## *Malcolm Baldrige Criteria for Performance Excellence*<sup>15</sup>

The measures established became the Malcolm Baldrige Criteria for Performance Excellence. These criteria offer one framework for aligning an organization's resource with continuous improvement (SPR, 1994, p. 47). According to Social Policy Research (SPR), the criteria promote (1) an understanding of the requirements for performance excellence and competitiveness improvement and (2) the sharing of information on successful performance strategies and the benefits derived from using these strategies. The Baldrige criteria represent an integrated set of basic values aimed at increasing customer value and enhancing organizational effectiveness (1997, p. 47).

According to the SPR, although best known as an award process, the Baldrige criteria are used primarily as an assessment and diagnostic tool. Key characteristics of the criteria are:

- Directed toward results;
- Non-prescriptive;
- Comprehensive;
- Foster continuous learning and improvement;
- Emphasize system alignment; and are
- Part of a diagnostic system (SPR, 1994, p. 47).

Thousands of other companies, including public agencies, have used the Baldrige criteria to align resources effectively on continuous improvement and have achieved similar gains in business results (SPR, 1997, p. 47). The Baldrige framework is the mostly widely used diagnostic tool in American business (Hodgetts, 1993, p. 7). Firms apply the criteria and develop their own internal scoring system with no intentions of actually entering the competition (Hodgetts, 1993, p. 7). It takes time and money to apply for the Malcolm Baldrige National Quality Award, but

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<sup>15</sup> Seven measures were established and a value assigned to each totaling 1000 points: Leadership (95), Information and Analysis (75), Strategic Quality Planning (60), Human Resource Management and Development (150), Process Management (140), Customer and Market Focus (300), and Business Results (180). Criteria point value has been changed over the years, but the total remains 1,000 points.

its "ripple effect" creates the largest forum for exchange of best practice information (Hodgetts, 1993, p. 7). Baldrige winners have made more than 10,000 presentations, reaching audiences estimated at more than three million, according to NIST (Hodgetts, 1993, p. 7).

Gale believes that customer needs should always drive a company, and most companies can achieve considerable improvement in their competitive position just by using customer value analysis to identify what is important and focusing management attention on getting it done (1994, p. 333). Gale emphasized that organizations "should always use the Baldrige criteria to audit each part of the organization. This will show you opportunities to increase your ability to do what your customer value analysis indicates you should be doing" (Gale, 1994, p. 333).

For example, ***Leadership*** will help to identify ways in which the messages from executives are failing to support the actions needed to be performed (Gale, 1994, p. 333). Assessment of ***Information and Analysis*** will point out areas where organizations do not know how to improve because the necessary data is lacking to understand processes and the best practices that should be an organization's model (Gale, 1994, p. 333). Attention to ***Strategic Quality Planning*** shall force organizations to evaluate and improve the process by which organizations plan their responses to customer needs (Gale, 1994, p. 333). ***Human Resource Development and Management*** forces organizations to look carefully at each of the following five key issues: human resource planning and management, employee involvement, employee education and training, employee performance and recognition, and employee well-being and satisfaction (Gale, 1994, p. 336). ***Management of Process Quality*** requires a careful examination of how organizations manage all the processes of their business, from design to delivery to support services such as finance & public relations (Gale, 1994, p. 336). ***Quality and Operational Results*** includes examinations of the technical measures of product and service

quality, the operational results of your organization, the trends in internal quality measures, and the trends in quality results of your suppliers (Gale, 1994, p. 336).

The Malcolm Baldrige National Quality Award is unlike the other TQM models. The Baldrige Award is **scorable**, and it has improved with experience, according to Mahoney and Thor (1994, p. 73).

### ***Other Quality Management Recognition/Awards***

The Deming Prize was a model for the Baldrige Award (Gale, 1994, p. 326). **Curt** Reimann and others closely studied the Deming system. The Deming criteria illustrated Japan's practice of leaving things a little bit more vague (Gale, 1994, p. 326). The Deming Prize criteria are a fairly simple checklist rather than a systematic description of the management elements a company needs to deliver superior quality as customers will perceive it (Gale, 1994, p. 326). The Malcolm Baldrige National Quality Award is limited to US businesses; whereas, the Deming Prize has been global since 1984 (Mahoney and Thor, 1994, p. 71). The Deming Prize is awarded to individuals, companies, and factories.

The European Quality Award has been presented annually starting in 1992 by the European Foundation for Quality Management in Eindhoven, the Netherlands (Gale, 1994, p. 326). It draws on the experience of the Baldrige award process much as the Baldrige award draws on the experience of the Deming process. Its criteria resemble the Baldrige criteria except that one criterion of excellence is a company's success in achieving its planned financial targets (Gale, 1994, p. 327).

While the European Quality Award has achieved only modest attention, another set of criteria has played a far more influential role in Europe: International for Standardization's ISO 9000 series of standards (Gale, 1994, p. 327). These criteria do not seem to be promoting

excellence at all according to Gale (1994, p. 327). In fact, Gale says that not only do the ISO standards not accomplish what the **Baldrige** criteria achieve, but they actually seem likely to create more bureaucracy than quality (Gale, 1994, p. 330).

Recognition for organizations has been discussed, but what about individual and/or team recognition. Charles **Kendig**, Quality Officer, Integrated Systems Operations, Xerox Corporation, states that "we all need recognition and without recognition, people feel excluded and unappreciated, sometimes to the point of extreme job dissatisfaction" (USOPM, 1992, p. 1). Conversely, the more organizations provide recognition, the more self-esteem employees have and the more willing they are to extend themselves for their organizations and for their own sense of personal achievement (USOPM, 1992, p. 1). **Kendig** stresses employees should be recognized through written or verbal acknowledgement, seeking input, sharing information, expanding participation, taking personal interest, and rewarding with a tangible expression of appreciation (USOPM, 1992, p. 2). The delivery of this recognition should be sincere, personalized, accurate, timely, specific, and appropriate (USOPM, 1992, p. 2).

### **Private versus Public Sector Organizations**

In 1887, Woodrow Wilson (prior to his presidency) observed that it was necessary to "render government activities more business like" (as cited in Ingraham, 1994, p. 3). Since then, the application of business concepts to the public sector has occurred over and over again with mixed success. Reforms such as, Civil Service (1890 to 1900s), Performance Budgeting (1920s), Program Budgeting and the Operations Research (1960s), Zero Based Budgeting (1970s), Management by Objectives, and Privatization (1980s to 1990s) are exactly what Wilson called for.

The Quality Movement is part of this larger tradition. The application of private sector principles has met with mixed success partly because private and public sector organizations are inherently different. In the private sector, business leaders are concerned with increasing their profits. In the public sector, the government not only provides (finances) but also produces (delivers) services, such as police protection, solid-waste collection, education, and libraries (Shields, 1994, p. 280). Because the government extracts their income primarily through taxation, tax payers expect and demand "more bang for their buck." As Steeples maintains, American consumers vote with their dollars (1992, p. 3). State and local government leaders, often smarting from declining tax revenues and increased demand for services, are looking to quality as a way to bring productivity, efficiency and responsiveness back to government (Steeples, 1992, p. 300).

Business makes changes in response to problems and creates new ways to manage. Government has often applied the new business ideas after they have been recognized in the private sector. Their application has met with mixed success. One current manifestation of learning from business is the Baldrige Award.

## **Quality Management in Public Sector Organizations**

### ***National Movement***

Bush and Reagan were not the first to question the return on investment in services delivered in the public sector. During the Progressive Era (approximately 1895-1917), there was great faith that if the public was educated to the issues and given sufficient information of good quality, they would demand good, well-managed government, and would do so effectively (Rubin, 1996, p. 115). In response to this movement, accountability for government finances

was born with the passage of the Budgeting and Accounting Act in 1921; its intent was to clean up government. The leaders of that time felt that no budget at all meant poor government. Then in the 1950s, Performance Based Budgeting made its appearance; it was intended to improve internal management and control costs by improving efficiency. The Civil Service Reform Act of 1978 relied conspicuously on private sector techniques for solving public problems, like pay for performance that was adopted government-wide (Ingraham, 1994, p. 3). More recently, movements in the public sector coincides and reinforces the reform efforts of the 1990s. Issues as they relate to the larger quality initiative are highlighted.

The federal government continues to learn from the private sector how to manage for results and improve performance (NPR, 1994, p. 2). Business leaders shared their experiences with the Vice President of the United States as he led the preparation of the National Performance Review (NPR) report (NPR, 1994, p. 2). Studies, such as the 1991 General Accounting Office (GAO) report, found that companies using quality management strategies achieved better relations, higher productivity, greater customer satisfaction, increased market share, and improved profitability (NPR, 1994, p. 2).

The "managing for results" approach builds on the Government Performance and Results Act (GPRA) of 1993, which mandates strategic planning and performance measurement in the federal government (NPR, 1994, p. 15). It also builds on recognized principles of strategic and quality management embodied in the Presidential Award for Quality (NPR, 1994, p. 15). The President created the award in 1988 to recognize federal organizations that, by implementing quality management, created high-quality products and services and provided best value for tax dollars (NPR, 1994, p. 15). The award is intended to champion the understanding of the value of

quality management and encourage its adoption throughout the federal government; the criteria for the award serve as a valuable assessment tool for culture change (NPR, 1994, p. 15).

### *National Quality Awards*

The Presidential Quality Award<sup>16</sup> parallel the criteria used in the Malcolm Baldrige Award, the national quality award for **top-performing** private sector companies (NPR, 1994, p. 15). The award, administered by the Federal Quality Institute (FQI) uses the seven criteria established for the Malcolm Baldrige National Quality Award for businesses but with modifications for the public sector (NPR, 1994, p. 15).

Despite the efforts to recognize and reward quality organizations, critics claim that the present quality recognition efforts in the federal sector should be consolidated to better focus on consistent criteria and to improve overall administration and efficiency (NPR, 1997, p. 18). Currently, there are three different organizations involved with the development, solicitation, and administration of four government-wide awards related to quality and productivity. The FQI administers the Presidential Award for Quality and Quality Improvement Prototype Award. The President's Council on Management Improvement (PCMI) administers the Award for Management Excellence, and the Office of Personnel Management (OPM) administers the Presidential Quality & Management Improvement Awards (NPR, 1994, p. 18).

Since 1994, in response to the President's mandate for federal agencies to take action to improve the level of service delivered to the American people, the Vice President's National Performance Review has sponsored interagency consortium benchmarking teams (NPR, 1997, p. 6). The NPR benchmarking teams followed established benchmarking procedures in conducting

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<sup>16</sup> The criteria are Leadership, Information & Analysis, Strategic Quality Planning, Human Resource Development & Management, Management of Process Quality, Quality & Operational Results, and Customer Focus & Satisfaction.

the NPR study, including on-site visits to each of the partner organizations (NPR, 1997, p. 6).

Best practices observed<sup>17</sup> were organized around the criteria established for the Malcolm Baldrige National Quality Award (NPR, 1997, p. 6).

One study concurs with incorporation of these criteria in initiating a continuous improvement process in any public sector organization is the adoption of the Malcolm Baldrige National Quality Award criteria for achieving performance excellence (USDOL, 1998, p. 16). The Baldrige criteria offer a set of nationally recognized organizing principles with which any organization can develop quality practices and processes (USDOL, 1998, p. 16).

### ***Quality Management*** Tools

Because the Baldrige framework views continuous improvement as embedded throughout the organization, the Baldrige criteria do not provide a model of continuous improvement per se (SPR, 1997, p. 49). They do, however, provide a model of the functional areas in the organization that affect ultimate results and in which improvements can occur (SPR, 1997, p. 49). These criteria can provide guidance on what can be changed and how it can be improved. Indeed, a self-assessment on the criteria can give an indication of what areas in the organization need improvement (SPR, 1997, p. 49).

The Baldrige criteria do place a considerable emphasis on information and analysis (the fourth category) (SPR, 1997, p. 49). The criteria in this category emphasize the collection of a wide range of information and data on performance. These data elements should be related to company goals and processes which would be available for use in a timely fashion, reliable, and themselves the subject of ongoing improvement (SPR, 1997, p. 49). Thus, the Baldrige criteria see performance measurement as an essential element of quality and continuous improvement

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<sup>17</sup> The NPR report of 1997 has a detailed description of the observations made related to the seven Baldrige criteria.

(SPR, 1997, p. 49). Given all the benefits of quality discussed in the literature one would expect that there is a relationship between high quality and performance. The empirical portion of this study is focused on the following hypothesis: There is a relationship between organizational performance and indicators of quality.

## **Review of Chapter 2**

The literature on quality management as a mechanism to improve organizational performance identifies similar, if not the same, theoretical conclusions for public and private sector organizations. The goal of these types of quality initiatives is to increase profitability in the private sector and improve efficient and effective service in the public sector. Unfortunately, this may not always happen. In a customer driven system, positive outcomes for customers are sometimes not reflected when reviewing performance measured outcomes (Angel, 1998, p. 15). This may be particularly true for workforce programs. For example, Angel's (1998, p. 15) study found that desired performance outputs in the form of increased wages as a result of training were not realized for some of the participants, but the participants were, nevertheless, satisfied with the performance outcomes (customer satisfaction and quality services) (Angel, 1998, p. 15).

The initial phases of the Quality Movement portray a "product-focused" outcome. However, the Awards and diagnostic tools developed as a result of the latter phases of the Quality Movement have created a heritage of the development and application of quality as a management goal or philosophy. The products developed as a result of the Quality Movement, (such as Awards and diagnostic tools) for private and public sector organizations make a strong

case that quality does positively impact overall performance, whether it be increasing market share and efficiency or improving customer satisfaction. Regardless of the situation, quality can always be improved no matter how good it is at any time (Glasser, 1992, p. 178). A quality organization is always alert for ways to improve what it does and how it does it (Glasser, 1992, p. 178). Quality always feels good, and the greater the quality, the longer the good feeling lasts (Glasser, 1992, p. 178).

While Chapter 2 discussed a general framework for quality management and organizational performance as it relates to both public and private sector organizations, Chapter 3 takes this framework and applies it to workforce development organizations in Texas.

## **Chapter 3: WORKFORCE DEVELOPMENT IN TEXAS''**

### **Purpose of Settings Chapter**

This chapter provides an overview of the workforce development system in the state of Texas. The chapter describes how state legislation significantly changed the design of the workforce development system in Texas. There is a brief discussion of new federal legislation and its potential impact on the state's system. Quality initiatives in workforce development are described. Finally, the chapter presents the central hypothesis of the study, finding that quality and performance are connected between TWC funded organizations and the organization's JTPA performance

### **Impact of State Legislation**

With the rise of new technologies, changes in international trade, deregulation and greater competition, the Texas labor market has undergone tremendous change since the initial enactment of the state's primary employment and training programs. Studies by the state legislature, comptroller, and others concluded that Texas' young and diverse population is, on the whole, ill prepared to compete in the global economy of the next century<sup>19</sup>.

In the early 1990s, Texas' leadership recognized that the system of job training and employment services that existed then did not address the needs of either the State's employers or its job seekers. The system failed to produce workers who were sufficiently skilled to keep up with rapid technological advancements as they occurred and the increasingly intense competition that accompanied such advancements.

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<sup>18</sup> This Chapter is drawn from several documents, both published and unpublished. They include the TWC Strategic Plan for FY99-2003, Texas Workforce Investment Act (WIA) State Plan, Interstate Conference of Employment Security Agencies (ICESA) correspondence, WIA federal regulations.

<sup>19</sup> As written in the state of Texas WIA plan submitted to the United States Department of Labor in 1999.

A fragmented and confusing approach to service delivery resulted in duplication in services, a waste of scarce resources, a lack of clear accountability for results, and inappropriate training, or sometimes, training for jobs that never even existed. Many of these deficiencies also existed in the public welfare system. There was little, if any, coordination between program for welfare recipients, minimal outreach to needy families, a dearth of personal attention for Texans lacking family support, and lagging accountability for results from the services that were rendered.

Just as America's economic progress greatly benefits many of our nation's businesses and workers, the economic future of Texas and the prosperity of its citizens depend upon the ability of Texas business to compete effectively in the world economy. To provide businesses with the competitive edge critical for success, a well-educated and highly trained workforce is necessary.

*Senate Bill 642*

Toward that end, the leadership of Texas took its first step in 1993. In Senate Bill 642, the 73<sup>rd</sup> Texas Legislature commenced the reorganization of the workforce education and training components of our State, creating the State Human Resource Investment Council to promote the development of a well educated, highly skilled workforce in Texas. The Council was expected to make recommendations to the next legislature regarding the full consolidation of workforce development programs. Today, the Council is referred to as the Texas Council on Workforce and Economic Competitiveness (TCWEC).

### *House Bill 1863*

During the following session (1995), the 74<sup>th</sup> Texas Legislature was determined to reform both the workforce system and the welfare system. Through a single, comprehensive act, Texas stepped out in front of many of the other states in preparing its workforce for the 21<sup>st</sup> Century.

#### Texas Workforce Commission (TWC)

House Bill 1863 [codified at Subtitle B, Title 4 of the Texas Labor Code] became effective September 1, 1995. The new law established the Texas Workforce Commission (TWC). HB 1863 mandated that twenty-eight (28) separate employment and training programs previously administered by ten different State agencies be merged to become TWC. The related categorical funding streams were consolidated into the new entity, TWC. State administration of the Job Training Partnership Act (JTPA) was transferred from the Texas Department of Commerce to the Texas Workforce Commission on March 1, 1996, with other programs merging on June 1, 1996.

At the same time, the wide-ranging statute directed the Texas Workforce Commission to create a new voluntary, decentralized service delivery system while permitting no disruption of services. In the new service delivery system, local workforce development boards (Boards) design and coordinate workforce education and training programs, including JTPA, in their area of the State. Services are delivered primarily through a network of one-stop career centers. With a plan for service delivery approved by the Governor, local Boards receive allocations of workforce funding for programs such as JTPA, Temporary Assistance for Needy Families (TANF) employment services (referred to as the Choices program), Food Stamp Employment and Training, and Child Care services for low-income families. The allocation of child care

services' funds to the Boards represents a significant policy shift in Texas since the child care program is a support program and not a job training program.

The consolidation of programs into a single agency and a revitalized service delivery system aimed to eliminate fragmentation, duplication and overlap, resulting in a more effective and efficient system for job seekers and employers alike. The entire system is built on partnerships: between State and local governments, between Boards and employers, between employers and workers, and among all providers of assistance to those in need.

It is the intention<sup>20</sup> of the State to exceed historical efforts to coordinate similar programs that deal with similar customers<sup>21</sup> and to facilitate the development of truly integrated programs and service delivery that is locally managed, customer driven, and high performing. Through improved integration of programs, Texas expects to achieve increased evaluative information and an improved system for performance accountability. The backbone of the state workforce law provides for a multi-funded contract to the Boards which emphasizes local accountability for results.

### Local Workforce Development Boards

The most important feature of Texas' unfolding workforce development system is the ability of local communities to tailor workforce services to meet their own particular area's local conditions. Local chief elected officials (CEOs) had the option, under State legislation, to establish a local workforce development board to plan and oversee programs within the designated local workforce development area (LWDA). The Governor designated the twenty-eight workforce development areas as seen in Map 3.1 (p. 44). The names of the twenty-eight

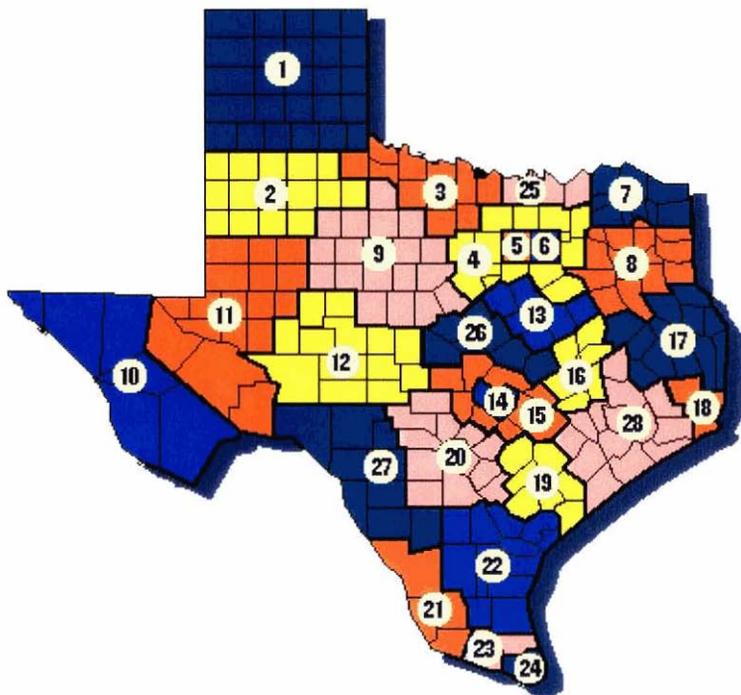
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<sup>20</sup> As cited in the Texas WIA Plan submitted by the Governor of the State of Texas to the Department of Labor in the spring of 1999.

<sup>21</sup> Customers refer to clients, participants, employers, students, unemployed individuals, etc. that have access to the workforce system in Texas.

workforce development areas are listed below the map.

Map 3.1—Texas Workforce Development Areas<sup>22</sup>



1. [Panhandle](#)
2. [South Plains](#)
3. [North Texas](#)
4. [North Central](#)
5. [Tarrant County](#)
6. [Dallas/Dallas County](#)
7. [North East Texas](#)
8. [East Texas](#)
9. [West Central Texas](#)
10. [Upper Rio Grande](#)
11. [Permian Basin](#)
12. [Concho Valley](#)
13. [Heart of Texas](#)
14. [Austin/Travis County](#)
15. [Rural Capital](#)
16. [Brazos Valley](#)
17. [Deep East Texas](#)
18. [South East Texas](#)
19. [Golden Crescent](#)
20. [Alamo](#)
21. [South Texas](#)
22. [Coastal Bend](#)
23. [Lower Rio Grande](#)
24. [Cameron County](#)
25. [Texoma](#)
26. [Central Texas](#)
27. [Middle Rio Grande](#)
28. [Gulf Coast](#)

Texas law offers Boards an unprecedented degree of control and decision-making authority over a broad array of employment and training programs and their resources.

By law, the Board consists of at least 51% private sector representation. The membership of the twenty-eight workforce development boards in the State range from 24 to 60 members. Each Board maintains a staff<sup>23</sup> to oversee the daily operations and administration of the programs. The

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<sup>22</sup> This map can be found at [www.twc.state.tx.us](http://www.twc.state.tx.us) under "Board Information."

<sup>23</sup> There is at least one Board that is operating without any staff at this time. It is a newly formed Board; the Board is in the hiring process.

Board's staff must be separate from, and independent of, any organization delivering workforce education or workforce training and services in the local workforce area. Boards may not provide direct services unless granted a waiver by TWC, eliminating the potential for conflicts of interest and strengthening the system's overall accountability. To that end, Boards must competitively procure a management company to operate the Workforce Centers in the respective LWDAs. The management company may be a for-profit or non-profit organization, community-based organization, or faith-based organization. Refer to Appendix A for a chart portraying the organizational relationships between the boards and workforce center operators.

## **Impact of Federal Legislation**

### *Workforce Investment Act of 1998*

The Texas workforce development system created in 1993 and 1995 mirrors the system described in the recently passed Workforce Investment Act of 1998 (Public Law 105-220). The Workforce Investment Act of 1998 (WIA) offers Texas the opportunity to maintain the best features of its existing workforce development system and to build upon its success. In many important ways, WIA parallels the progressive model developed by the foresighted leaders in Texas. WIA repeals the Job Training Partnership Act (JTPA), but Texas continues to receive a comparable appropriation to the amount received for JTPA. Almost one-third of the Texas Workforce Commission's total program budget is generated from WIA. TWC is appropriated close to \$300 million in WIA funds. Most of this appropriation is then allocated to the **twenty-eight** local workforce development areas. In support of the vision, the strategic goals and the objectives for workforce development, the State began implementing WIA beginning July 1, 1999, in twenty-six of its local workforce development areas.

Like JTPA, WIA maintains funding requirements for three populations: youth, adult, and dislocated workers. However, unlike JTPA, WIA does not establish income eligibility requirements for the adult program. WIA stipulates that that decision, whether income eligibility requirements are required for adults, be determined by local Boards. The most significant change between JTPA and WIA is the method in which referral to training is made. For a training provider to be referred WIA funded participants, the training provider must submit an application to the certifying Board. The Board determines the criteria for approving the training provider applications. If and when the Board approves the application, the Board forwards the information to the State for inclusion on the state's Training Provider Certification System (TPCS).<sup>24</sup> A WIA participant may enroll into an approved training provider program once she has navigated through gateways: basic core, assisted core, and intensive services.

The WIA program design promotes a WorkFirst philosophy. In other words, if a customer (client) of the Workforce Center is seeking employment, tests the local labor market, and finds that she has the necessary skills to secure employment at or above the self-sufficiency wages set by the local Board, that individual would not be suited for training. Once a WIA participant navigates through the gateways and it is mutually determined (case manager and participant) that training is the next phase, the WIA participant is issued an Individualized Training Account (ITA). The ITA or voucher can only be exchanged with an approved training provider.

Unlike JTPA, WIA touts customer choice. The participant determines which training provider she will attend based on the statewide training provider list. The decision is based on information, such as cost, length of training, and performance of institution and the

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<sup>24</sup> The TPCS can be accessed at the following web site: <http://decide.soicc.state.tx.us>.

institution's graduates. Using this method of referral, WIA emphasizes and encourages accountability of the training providers. The design of the JTPA program did not require the performance evaluation of its training providers as is the case with WIA.

Performance under WIA also changes. Under JTPA, performance follow-up was determined by placing a phone call to terminated participants 13 weeks after completion or termination from the program. The type of employment and wages were collected by the telephone survey, which was conducted by an objective, third party. This information was then aggregated by the state (TWC). Under WIA, the telephone survey follow-up is not conducted. Follow-up data is being collected through the Unemployment Insurance (UI) wage records. There is also a new performance outcome required under WIA: customer satisfaction. The state will be conducting an annual customer satisfaction survey of WIA participants and of employers.

### **Quality Initiatives in Workforce Development**

Unlike previous legislation related to workforce development, WIA uses the term "continuous improvement" an unprecedented eight times; the use of this term was lacking in previous legislation. The emphasis on change is a good indication that the "status quo" is no longer acceptable. However, the idea of incorporating continuous improvement into workforce development programs is not new.

#### ***The Enterprise***

One example of how continuous improvement has been incorporated into workforce development programs and organizations is seen through the works of the Enterprise. The Enterprise is a network of workforce development organizations that emphasize high quality, customer-focused services, and uses successful process management techniques adapted from

the private sector. Membership in the Enterprise is voluntarily but not automatic; Enterprise membership is based on standards modeled on successful private sector business practices, including the Malcolm Baldrige National Quality Award. The Baldrige criteria were chosen to identify Enterprise membership because an organization that strongly displays the Baldrige criteria is considered a quality organization (Gale, 1994).

"Quality is a journey not a destination."<sup>25</sup> Since 1994 this has been the Enterprise message for promoting continuous quality improvement as a means to achieving a world-class workforce development system—a system that optimizes performance and delivers unparalleled levels of service and results. Representatives of the Enterprise agree that without a proper vehicle to showcase excellence, many programs with outstanding performance went unrecognized.

Out of necessity, the Enterprise began as a voluntary effort targeting a limited part of the workforce development system—United States Department of Labor/Employment and Training Administration (USDOL/ETA) funded organizations delivering JTPA Title III Dislocated Worker services. Since 1994, there has been a strong and steady response from organizations expressing interest in the Enterprise. To date, 171 organizations throughout the United States have completed the process and been certified as meeting the high levels of performance required for Enterprise membership.

The Enterprise adopted the Malcolm Baldrige performance excellence criteria as the method it uses to systematically approach assessing, measuring, and recognizing quality. A local organization that seeks acceptance into the Enterprise must meet the following standards:

- achieve a rating of 75 percent on a standard customer satisfaction survey administered by an independent research firm;

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<sup>25</sup> As cited on The Enterprise web site: [www.theenterprise.org](http://www.theenterprise.org).

- achieve superior performance as measured by an 80 percent entered employment rate in formula programs, and meet or exceed the employment standard for governor's reserve and national discretionary projects; and
- demonstrate a commitment to continuous improvement through responses to questions in critical quality management practices.

Typically, an organization first submits an enrollment form, on which it reports outcome data for the most recent Program Year. At the same time, a list of recent terminees (JTPA participants who have been terminated from the program) is transmitted to the Enterprise to begin the customer survey. The second step, which completes the application, is the submission of a narrative describing the organization's management practices in response to the Enterprise continuous improvement questionnaire.

Local workforce development organizations in Texas may apply for membership in the Enterprise. In order to be accepted as an Enterprise member, each organization (Board or contractor) must adhere to quality principles. Evidence of adherence occurs during a careful evaluation, as described above, of the organization by the Enterprise. The Enterprise relies on external sources to determine the applicant's qualifications for membership. Outcome data is verified with the State; a customer satisfaction survey is conducted by an independent survey research firm; and a panel of examiners composed of independent quality experts and peers from the workforce development system reviews the continuous improvement questionnaire.

To date there are fourteen organizations associated with the local workforce development areas in Texas that have achieved Enterprise membership status. Refer to Appendix B for a complete list of the organizations in Texas that are Enterprise members. Appendix A shows through diagrams the organizational arrangements associated with local workforce development areas.

By attaining Enterprise standards, an organization is deemed to have delivered the range and manner of services expected by the organization's customers, achieved the outcomes expected by their customers and the system's investors, and begun to implement the process management principles followed by successful private sector organizations.

### **Conceptual Framework: Relationship Between Quality and Performance**

The Malcolm Baldrige Performance Excellence Criteria combine a **powerful** set of proven principles and management practices that bind an organization together to yield *high performance* (as cited on the Enterprise web site). When adopted and implemented, these principles enable an organization to deliver ever-increasing value to customers and stakeholders by improving organizational capabilities. Given the relatively new nature of quality initiatives into public sector workforce organizations, membership in the Enterprise is a way to distinguish between quality and unknown quality organizations. Based on this premise, one would expect that quality organizations yield higher performance than non-quality organizations.

### ***Formal Hypothesis***

Explanatory research addresses the "why" question and uses the formal hypothesis as its conceptual framework. (Shields, 1998, p. 220) This study attempts to uncover whether workforce development organization committed to quality achieve higher performance than organizations that do not demonstrate a commitment to quality.

**Table 3.1 –Theoretical Framework**

Hypothesis	Literature Support
<b>Organizations that practice quality management as evidenced through their membership to the "Enterprise" are expected to achieve higher performance results than non-member organizations.</b>	Connor (1997) Gale (1994) Lam (1997) Senge (1994) SPR (1994) Steeple (1992)

### **Review of Chapter 3**

Texas adopted a customer and market driven system in its state legislation related to workforce development (Senate Bill 642 and House Bill 1863). Federal legislation related to workforce development reinforces the current system in Texas. Programs and services that were administered by the Texas Workforce Commission (TWC) are devolving to quasi-governmental units referred to as local workforce development boards. The organizations (Boards and contractors) responsible for overseeing and operating programs are eligible for membership into the Enterprise. Organizations that are committed to quality, such as Enterprise members, are expected to yield high performance regardless of cost or competition. Chapter 4 examines the methodology used to test the quality hypothesis

## **Chapter 4: MEASURING QUALITY AND PERFORMANCE**

The purpose of this chapter is to state the method used to generate evidence for or against the formal hypothesis. An explanation of the use of analysis of existing data as the method for gathering evidence is provided; strengths and weaknesses of this method are discussed. The variables, Enterprise membership status and JTPA performance, are defined and described in detail. Finally, the formal quality hypothesis is operationalized.

### **Restatement of Research Purpose**

Private and public sector organizations share a desired outcome: customer satisfaction. However, actual performance outcomes vary between the two. The private sector may measure its success against profit margins. The public sector may measure its success against established, contracted performance standards, when applicable, such as workforce development organizations. Private sector organizations with a commitment to quality management have experienced increased performance, such as Xerox (Gehani, 1993, p. 38). With that in mind, do public sector organizations with a commitment to quality meet **and/or** exceed established, contracted performance standards?

### **Unobtrusive Research: Analysis of Existing Data**

To determine whether workforce development organizations with a commitment to quality meet **and/or** exceed established, contracted performance standards, this study analyzed existing data. The use of unobtrusive research may result in problems of validity and reliability. However, its use allows researchers to study social life from afar, without influencing it in the process (Babbie, 1998, p. 307).

The variables used to operationalize the conceptual framework are identified through the analysis of existing data. One of the variables is the status of local workforce development organizations. The organizations are divided into two groups: members of the Enterprise and non-members of the Enterprise. Organizational performance, the other variable, is measured using the Job Training Partnership Act (JTPA) end of the year performance standards. The unit of analysis in this study is the workforce development organization.

### ***Strengths***

The greatest advantage of unobtrusive research is its economy in terms of both time and money (Babbie, 1998, p. 318). A single researcher or student could undertake this type of analysis; whereas, undertaking a survey might not be feasible (Babbie, 1998, p. 318). This type of analysis permits one to study processes occurring over long periods of time.

### ***Weaknesses***

The greatest weakness of analysis of existing data is the problems of validity and reliability. Babbie cautions that in using existing data, one is limited to what exists (Babbie, 1998, p. 322). Often the existing data does not cover exactly what one is interested in, and the measurements may not be altogether valid representations of the variables and concepts to draw conclusions about.

In this study, the Enterprise membership signals quality processes in a workforce development organization. However, non-membership does not signify non-quality processes. It is possible that the comparison is of two quality organizations. There might also be organizations not included as members of the Enterprise who are in the process of applying for membership. For the purpose of this study, the organizations that might fall into the latter category would be considered non-members or not committed to quality.

## **Population**

Based on the hypothesis discussed in Chapter 3, the population analyzed for this study is workforce development organizations in Texas. The workforce development organization examined is the unit of analysis. Although there are twenty-eight local workforce development areas (thus Boards) in Texas, there are actually thirty-three workforce development organizations eligible for Enterprise membership. The independent variable that is operationalized is the membership status of a workforce development organizations in Texas. This variable has two possible classifications. One group is organizations that are members of Enterprise, and the other group is organizations that are non-members of the Enterprise. Theoretically, the organizations that are members of the Enterprise signify a commitment to quality, and the organizations that are non-members do not demonstrate a commitment to quality.

The status of membership to the Enterprise was collected from the Enterprise web site. Of the twenty-eight local workforce development areas in Texas, there are currently fourteen (14) workforce development organizations that represent thirteen (13) local workforce development areas (LWDAs) that belong to The Enterprise. The comparison group consists of the LWDA organizations that do not belong to the Enterprise; there are nineteen (19) organizations representing fifteen (15) LWDAs who belong to this group. Refer to Appendix B for a list of workforce development organizations and their membership status to the Enterprise.

**Table 4.1 – List of Organizations and Status**

<b>LWDA</b>	<b>Organization</b>	<b>Type</b>	<b>Member</b>
Alamo	Alamo WDB	Board	No
Brazos Valley	Brazos Valley WDB	Board	No
Cameron County	Cameron County WDB	Board	No
Capital Area	Capital Area WDB	Board	No
Central Texas	Central Texas WDB	Board	Yes
Concho Valley	Concho Valley WDB	Board	No
Coastal Bend	Corpus Christi SDA Rural Coastal Bend SDA	Merged to form One Board	No No
Dallas	Dallas County WDB City of Dallas	Merged to form One Board	Yes No
Deep East Texas	Deep East COG	Board	Yes
East Texas	East Texas WDB	Board	No
Golden Crescent	Golden Crescent WDB	Board	No
Gulf Coast	Houston Works HGAC SDA	Contractor Board	Yes No
Heart of Texas	Heart of Texas WDB	Board	No
Lower Rio Grande Valley	Hidalgo County OET	Contractor	No
Middle Rio Grande	Middle Rio Grande Development Council	Contractor	Yes
North Central	North Central WDB	Board	Yes
North East Texas	North East Texas WDB	Board	No
North Texas	North Texas WDB	Board	No
Panhandle	Panhandle WDB	Board	No
Permian Basin	Permian Basin Consortium	Board	Yes
Rural Capital	Rural Capital WDB	Board	Yes
Southeast Texas	Southeast Texas WDB	Board	No
South Plains	Texas Workforce Center/Lubbock South Plains SDA	Contractor Board	Yes No
South Texas	South Texas WDB	Board	No
Tarrant County	The Working Connection Tarrant County Employment Network	Board Contractor	Yes Yes
Texoma	Texoma WDB	Board	Yes
Upper Rio Grande	Upper Rio Grande WDB	Board	No
West Central Texas	West Central Texas COG	Board	Yes

## **Dependent Variables**

The ten dependent variables are the result of the manipulation of the nine (9) Job Training Partnership Act (JTPA) federal performance standards and state goals, and the tenth variable is a composite of the nine manipulated JTPA performance standards. The JTPA Program Year 1997 (July 1, 1997 to June 30, 1998) performance results are used in this study. The predicted performance standards and goals vary for each LWDA. Each predicted measure is derived through a regression model calculated for the state of Texas based on LWDA demographics, such as the gender, welfare, minority, and education status. For example, the predicted JTPA Title IIA performance measure for entered employment rate for the Alamo LWDA (60.86) is lower than the Austin/Travis County LWDA (68.80). The characteristics for San Antonio and its surrounding areas indicate a harder to serve population based on a higher percentage of welfare recipients and high school dropouts than the Austin/Travis County LWDA. The actual performance measure is based on terminated participants or terminees. For predicted and actual performance of each organization, refer to Appendix C.

The nine JTPA performance measures are calculated for each workforce development organization that receives JTPA funds from the Texas Workforce Commission. JTPA performance can be calculated for each contractor in a local workforce development area if there is more than one contractor in a designated area. Since the JTPA funds are contracted between TWC and the Board, TWC hold the Boards accountable for the performance. The Board then holds each contractor (if more than one) accountable for the JTPA performance of the LWDA. Performance is calculated by Program Year; the Program Year begins July 1 and ends June 30. For the purpose of this study, performance for Program Year (PY) 1997 was analyzed. Program Year 1997 began on July 1, 1997 and ended June 30, 1998.<sup>26</sup>

**Table 4.2 – List of JTPA Performance Measures**

JTPA Title	Performance Measure	Federal or State
Title IIA	1. Percent Entered Employment Rate	Federal
	2. Average Weekly Earnings (\$)	Federal
	3. Percent Welfare Entered Employment Rate	Federal
	4. Average Welfare Weekly Earnings (\$)	Federal
Title IIC	5. Percent Entered Employment Rate	Federal
	6. Employability Enhancement Rate	Federal
Title III	7. Percent Entered Employment Rate	Federal
	8. Average Rate at Placement (Hourly Rate-\$)	State Goal
	9. Follow-Up Employment Rate	State Goal

**Table 4.3 – Description of Performance Measures**

Performance Measure	How it is Measured
1. Employment Rate <sup>a</sup>	Percent of Adult participants (22+ years of age) employed 13 weeks after termination from program
2. Weekly Earnings <sup>a</sup>	Average weekly earnings of terminated Adult participants
3. Welfare Employment Rate <sup>a</sup>	Percent of Adult welfare participants employed 13 weeks after termination
4. Welfare Weekly Earnings <sup>a</sup>	Average weekly earning of terminated Adult welfare participants
5. Entered Employment Rate <sup>b</sup>	Percent of Youth participants (16 to 21 years of age) employed 13 weeks after termination
6. Employability Enhancement Rate <sup>b</sup>	Percent of Youth participants who demonstrates increased score upon completion of program
7. Entered Employment Rate <sup>c</sup>	Percent of Dislocated Workers employed upon termination from program
8. Average Wage at Placement <sup>c</sup>	Average hourly rate of Dislocated Worker at placement
9. Follow-Up Employment Rate <sup>c</sup>	Percent of Dislocated Workers employed 13 weeks after termination from program

a--Title IIA (Adult); b--Title IIC (Youth); c-- Title III (Dislocated Worker)

<sup>26</sup> Program Year 1998 data was not used because the end of the year final results would not be available until November of 1999.

JTPA Title IIA refers to the Adult program that serves individuals age 22 years and above whom are economically and educationally disadvantaged. JTPA Title IIC refers to the Youth program that serves individuals age 16 through 21. The JTPA Title III program refers to the Dislocated Worker program; there is no income eligibility determination for this program.

### **Operationalization**

In order to operationalize the formal hypothesis, existing data is analyzed. Each JTPA performance measure is manipulated to yield the percent difference between the predicted and actual performance. The dependent variables, labeled 1 through 10, as seen in Table 4.4 are derived by determining the percent difference between the actual and the predicted JTPA performance measure of each LWDA for each of the nine JTPA performance standards and goals. The actual measure is subtracted from the predicted measure, and the difference is divided by the predicted measure. The tenth dependent variable is derived by adding the percent differences of the nine JTPA measures. The Enterprise membership status for each workforce development organization is coded, so Enterprise Member is “1” and non-member is “0.” The distinction between dependent (organizational performance) and independent (member or non-member) variables is operationalized to support the formal hypothesis.

**Table 4.4 – Operationalization**

Data Source	Type	Reclassification of Variable	Variable Name
TWC Records— Final Program Year 1997 JTPA Performance	Dependent	<p>Calculation of Percent Difference:</p> <ol style="list-style-type: none"> <li>1. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>2. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>3. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>4. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>5. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>6. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>7. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>8. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>9. <math>(\text{predicted} - \text{actual})/\text{predicted} =</math></li> <li>10. <math>(\text{jtpa1 dif} + \text{jtpa2dif} + \text{jtpa3dif} + \text{jtpa4dif} + \text{jtpa5dif} + \text{jtpa6dif} + \text{jtpa7dif} + \text{jtpa8dif} + \text{jtpa9dif}) =</math></li> </ol>	<p>Jtpal dif Jtpa2dif Jtpa3dif Jtpa4dif Jtpa5dif Jtpa6dif Jtpa7dif Jtpa8dif Jtpa9dif  Jtpa10dif</p>
Enterprise Web Site	Independent	Enterprise Member = 1 Non-Member = 0	

**Review of Chapter 4**

Chapter 4 revealed the methodology used to gather evidence for this study. Analysis of existing data was used to demonstrate the effectiveness of the Enterprise membership on organizational performance to support the formal quality hypothesis. The forthcoming chapter details the findings demonstrated from the statistical calculation.

## **Chapter 5: ANALYZING THE RESULTS: QUALITY AND PERFORMANCE**

This chapter presents and discusses the results of the empirical research. The formal hypothesis, which makes up the conceptual framework, is the essential element considered in the review of results and subsequent discussion.

### **Hypothesis: Relationship Between Quality and Performance**

The formal hypothesis states that a workforce development organization with a commitment to quality as evidenced through their membership to the Enterprise yields higher performance than a workforce development organization that is not a member of the Enterprise. Thirty-three workforce development organizations were included in this study. The overall sum of the percent difference of the nine JTPA measures was 3.05 for the fourteen organizations that belonged to the Enterprise. The nineteen non-member organizations yielded 2.49 as the overall sum of the percent difference of the nine JTPA measures.

Each performance measure was manipulated, so that one outcome measure was representative of each. Instead of a predicted and actual measure, SPSS computed the percent difference between predicted and actual. This computation was performed for each pair of measures (predicted-actual). Refer to Table 4.4 for the formula used to calculate the percent difference. Finally, the sum of differences was computed for a tenth dependent variable. Refer to Appendix C for actual performance information.

### **Is there a relationship?**

The full population of workforce development organizations in Texas was used in this study; therefore, a comparison of means was completed to determine whether there was a

relationship between organizational performance and quality management. The mean of each set of dependent variables is compared for the appropriate grouping variable (member status).

Issues of statistical significance will not apply to this study; instead, administrative significance is applied. Administrative significance is evident if at least a (positive) ten percent difference between the Enterprise members and non-members exists for any of the ten dependent variables. The following is a summary of the results.

**Table 5.1 – Comparison of Means between Enterprise Members & Non-Members (N=33)**

Dependent Variables*	Enterprise Member Mean (N=14)	Non-Member Mean (N=19)	Percent Change + or -	Administrative Significance
Jtpa1dif	26%	28%	-2%	
Jtpa2dif	51%	37%	+14%	Yes
Jtpa3dif	39%	36%	+3%	
Jtpa4dif	53%	39%	+14%	Yes
Jtpa5dif	68%	36%	+32%	Yes
Jtpa6dif	37%	50%	-13%	
Jtpa7dif	16%	14%	+2%	
Jtpa8dif	11%	8%	+3%	
Jtpa9dif	3%	<1%	>+2%	
Jtpa10dif	3.05%	2.49%	+5%	

\*Each Dependent Variable was manipulated to yield one figure. The percent difference was calculated for each dependent variable by subtracting the actual performance from the predicted performance and then dividing the difference by the predicted performance [(actual-predicted)/predicted].

Based on Table 5.1 and administrative significance, Enterprise organizations or quality conscious organizations demonstrate a higher level of performance in three areas of JTPA performance: Adult Average Weekly Earnings (jtpa2dif), Welfare Average Weekly Earnings (jtpa4dif), and Youth Entered Employment Rate (jtpa5). Therefore, one-third of the organizational performance measures confirm administrative significance. The remaining variables with the exception of two (jtpa1dif and jtpa6dif) indicate a positive relationship in support of the hypothesis, however, without statistical confidence

When comparing the means of the Enterprise members and non-Enterprise members, Variable *jtpa6dif* yields an interesting result. The percent change between the two is a negative 13 percent. The non-Enterprise organizations performed much better than the Enterprise organizations. One may speculate that Enterprise members focus on an employment outcome for their JTPA Youth participants as evidenced by the administrative significance produced by *jtpa5dif*. Whereas, non-Enterprise members focus on enhancing the employability enhancing skills of the JTPA Youth (*jtpa6dif*) as an incremental achievement towards achieving employment.

## **Review of Chapter 5**

Through analysis of existing data and the application of descriptive statistics, the formal hypothesis that organizations committed to quality yield high performance is tested. The results yield administrative significance in one-third of the variables indicating that the Enterprise organizations perform better than non-Enterprise members do. Overall eight out of the ten variables indicate a positive relationship between Enterprise membership and organizational performance. Therefore, the relationship between Enterprise (quality conscious) organizations and high performance is supported by these results. Chapter 6 concludes the ARP with a summary of findings.

## **Chapter 6: SUMMARY AND CONCLUSION**

### **Conclusions Regarding Hypothesis**

It is evident that the literature supports the hypothesis that organizations that practice quality management are expected to achieve high performance results. The empirical research yields supporting, though not statistically significant, results. Administrative significance was evident in one-third of the variables.

Issues that may have prevented the full (statistical) support of the hypothesis, as related to the empirical study, revolve around the JTPA performance measures. Workforce development professionals have long speculated that organizations with an extensive history in the administration and operation of the JTPA program have learned to manipulate the performance standards to yield desired organizational outcomes. For achieving high performance may result in incentive funds for that organization. For example, in setting the criteria for enrolling JTPA eligible participants, a local workforce development organization may have an unwritten policy to enroll only those individuals that have a high school diploma or GED. By enrolling those individuals who are expected to complete JTPA sponsored training successfully, the organization is guaranteeing its own organizational success, without regard to its Enterprise membership status.

Another factor that may have prohibited the full support of the hypothesis is the method of which some of the data is collected. Some of the performance standards are dependent on a thirteen week follow-up that is conducted on terminated JTPA participants. The follow-up is a telephone survey conducted by an objective third party (neither Board, nor contractor, nor TWC). The terminated participant and not the employer report follow-up wages. Therefore, the follow-up outcomes are dependent on the participant's word and not hard data, such as

Unemployment Insurance (UI) Wage Records. For Program Year 1999 (July 1, 1999 to June 30, 2000), telephone surveys will no longer be conducted. Follow-up wage data will be collected by the UI wage records as reported quarterly by employers.

For the purpose of this study, performance for a local workforce development may have been compromised in a situation where the workforce development board is a member of the Enterprise and the Board's contractor is not a member or vice-versa.

### **Relevance of the Research Today**

Based on the current Texas workforce development structure and the implementation of the Workforce Investment Act (WIA), continuous improvement will continue to play an integral role in the success of the system. Accountability at all levels (federal, state, Board, and contractor) will rely on the continuous improvement of the system. In addition, customer satisfaction in workforce development services received will determine if an organization is successful as competition for services increases locally.

As the Texas Workforce Commission continues on its Quality journey as demonstrated by the agency's recent membership to the Enterprise. TWC became a Pioneer Member of the Enterprise earlier this year. It is highly likely that TWC will encourage non-member organizations to join the Enterprise.

### **Future Research**

There is great potential to take the simplistic approach to which this ARP was accomplished to proving the above hypothesis at a national level or more sophisticated level. Some areas of the ARP would need to be refined, such as developing degrees of quality and

identifying up front that all workforce development organizations (33) were equal prior to becoming an Enterprise member, especially in the area of funds allocated. For example, it might be inappropriate to compare LWDAs with a significant difference in TWC funds received.

### **Review of Chapter 6**

Chapter 6 revealed and summarized the overall results of the ARP. The hypothesis was strongly supported by the literature and mildly supported by the empirical research. Further research should be conducted on this topic, particularly this hypothesis, to determine whether or not statistically significant results might be generated.

### **Review of All Chapters**

The six chapters included in this research revealed a pragmatic approach to assessing the relationship between quality management and organizational performance. Chapters 1 through 3 provided background support of this relationship as it applies to the workforce development system in Texas, through an extensive review of available, related literature.

To focus the study on a more narrowly defined relationship, Chapter 4 reveals that the analysis of existing data was used to achieve the research purpose. Chapters 5 and 6 revealed the empirical findings of the research, collected by analyzing existing data, and connected the findings to the purpose of the study.

The evidence supported the formal hypothesis, which outlined the conceptual framework for the study. The evidence corroborated the material extracted from the literature as well. The research purpose, at this point, has been achieved.

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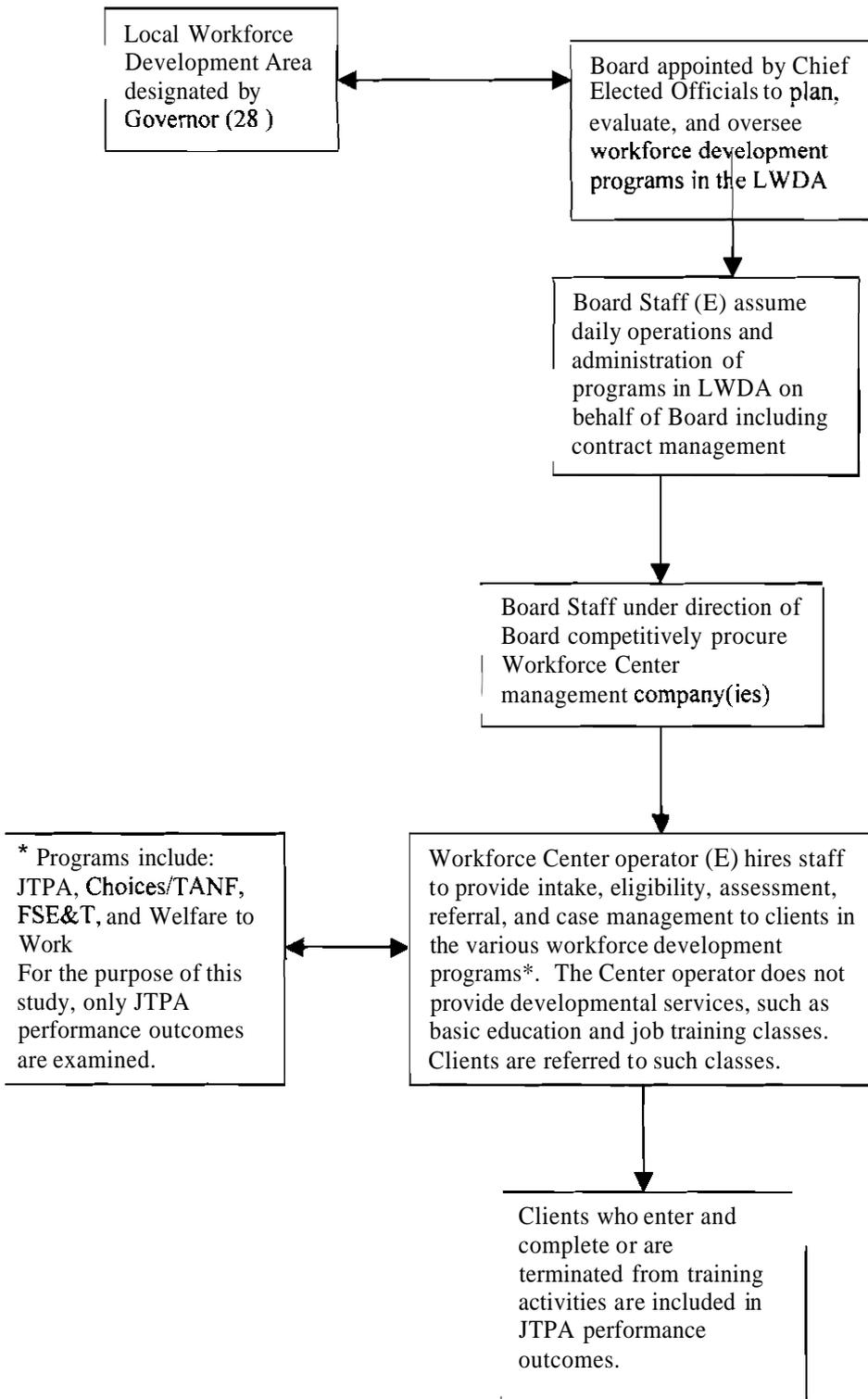
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## APPENDIX A – WORKFORCE DEVELOPMENT ORGANIZATIONAL RELATIONSHIPS

Organizations eligible for membership to the Enterprise are designated by (E).



## APPENDIX B—WORKFORCE DEVELOPMENT ORGANIZATIONS

<b>Organization</b>	<b>Local Relationship</b>	<b>Member Status</b>
Dallas County Workforce Development Board	Board	Enterprise Member
Deep East Texas Council of Governments	Board	Enterprise Member
Houston Works	Contractor	Enterprise Member
Central Texas Workforce Development Board	Board	Enterprise Member
Middle Rio Grande Development Council	Contractor	Enterprise Member
Texas Workforce Center of Lubbock	Contractor	Enterprise Member
North Central Workforce Development Board	Board	Enterprise Member
Tarrant County Employment Network	Board	Enterprise Member
The Working Connection	Contractor	Enterprise Member
Texoma Council of Governments	Board	Enterprise Member
South Plains Consortium	Board	Enterprise Member
West Central Texas Council of Governments	Board	Enterprise Member
Rural Capital Area Workforce Development Board	Board	Enterprise Member
Permian Basin Consortium	Board	Enterprise Member
Alamo Workforce Development Board	Board	Non-Member
Brazos Valley Workforce Development Board	Board	Non-Member
Cameron County Workforce Development Board	Board	Non-Member
Capital Area Workforce Development Board	Board	Non-Member
Concho Valley Workforce Development Board	Board	Non-Member
Corpus Christi SDA	Contractor	Nan-Member
Rural Coastal Bend	Board	Non-Member
City of Dallas	Contractor	Non-Member
East Texas Workforce Development Board	Board	Non-Member
Golden Crescent Workforce Development Board	Board	Non-Member
Gulf Coast Workforce Development Board	Board	Non-Member
Heart of Texas Workforce Development Board	Board	Non-Member
Lower Rio Grande Valley Workforce Development Board	Board	Non-Member
North East Texas Workforce Development Board	Board	Non-Member
North Texas Workforce Development Board	Board	Non-Member
Panhandle Workforce Development Board	Board	Non-Member
Southeast Texas Workforce Development Board	Board	Non-Member
South Texas Workforce Development Board	Board	Non-Member
Upper Rio Grande Workforce Development Board	Board	Nan-Member

**APPENDIX C—PY97 JTPA PERFORMANCE (SPSS DATA SHEET)**

	wda	member	jtpa1pre	jtpa1act	jtpa2pre	jtpa2act	jtpa3pre	jtpa3act	jtpa4pre	jtpa4act
1	Alamo	0	60.86	71.46	265.18	312.39	51.30	68.98	222.29	297.80
2	BrazosValley	0	63.64	87.05	251.61	348.18	53.38	100.00	206.70	310.70
3	Cameron	0	52.42	60.67	231.31	271.88	42.14	47.05	179.69	248.47
4	CapitalArea	0	68.80	77.22	320.92	365.54	61.40	50.04	278.26	274.57
5	Central		66.88	85.21	277.78	444.78	53.15	72.73	227.14	521.35
6	CoastalBend	0	58.71	74.23	261.88	367.80	49.70	65.69	226.01	309.02
7	RuralCoastal	0	62.66	79.48	250.28	336.49	52.26	66.45	206.36	285.83
8	ConchoValley	0	67.99	84.90	278.14	389.67	56.90	85.71	236.28	478.97
9	Dallas	0	54.35	70.56	318.52	431.11	46.90	61.87	282.54	429.81
10	DallasCounty		53.31	64.25	302.05	396.51	43.64	53.78	269.08	307.00
11	DeepEast		66.75	91.85	294.83	465.14	57.41	94.44	241.08	362.10
12	EastTexas	0	62.40	74.84	281.88	367.86	52.03	69.14	239.32	321.66
13	GoldenCresce	0	64.26	89.21	275.88	408.81	56.59	67.31	244.14	390.20
14	GulfCoast	0	58.18	81.99	287.06	352.85	46.91	75.07	244.50	327.35
15	Houston	1	62.55	81.01	316.10	373.42	51.17	71.47	260.47	320.90
16	HeartofTexas	0	63.12	78.35	275.72	415.89	53.46	65.19	238.76	315.85
17	HidalgoWill	0	53.99	81.18	252.70	419.55	41.43	73.79	201.49	300.02
18	MiddleRioGra		55.63	87.03	244.83	466.34	39.28	72.50	187.74	282.44
19	NorthTexas	0	55.99	72.56	246.28	344.06	49.36	68.05	200.73	232.80
20	NorthCentral		67.27	75.85	314.04	520.75	57.02	72.08	272.87	363.85

	jtpa5pre	jtpa5act	jtpa6pre	jtpa6act	jtpa7pre	jtpa7act	jtpa8pre	jtpa8act	jtpa9pre	jtpa9act
1	48.67	54.90	35.88	52.30	72.00	76.91	8.96	9.49	80.06	80.28
2	41.75	37.50	34.66	37.50	72.37	79.31	9.14	9.93	82.26	75.20
3	42.64	50.00	40.22	54.07	62.47	45.98	6.03	6.94	68.73	55.75
4	62.72	70.30	18.72	32.40	71.62	91.67	12.12	13.43	82.38	88.92
5	33.62	46.70	48.59	72.20	72.76	85.44	8.09	10.48	79.14	86.05
6	38.23	70.59	46.85	73.97	70.40	81.25	8.60	8.29	79.56	81.21
7	36.24	48.84	46.36	66.67	71.45	90.48	7.97	8.31	79.04	73.58
8	47.85	64.00	32.52	52.60	74.32	92.38	9.24	9.68	81.22	86.17
9	51.95	61.90	34.64	40.90	69.66	80.58	11.40	12.14	78.59	79.06
10	34.72	38.90	42.63	62.60	67.71	76.19	10.83	11.52	74.79	73.05
11	21.87	75.00	49.90	75.40	73.64	92.11	8.41	9.10	81.95	82.00
12	40.19	42.40	40.08	57.70	71.45	69.80	8.67	8.46	80.06	67.91
13	45.28	60.00	37.62	68.20	73.48	90.11	8.07	8.06	81.31	83.10
14	45.30	62.05	38.52	77.76	69.34	83.63	11.92	13.98	75.90	79.04
15	50.00	58.60	40.13	58.60	72.68	84.92	12.33	13.40	82.04	78.06
16	43.60	66.70	38.04	66.70	73.47	94.74	8.97	10.10	82.05	89.28
17	34.94	90.56	51.99	66.67	62.87	93.31	6.95	8.13	69.26	83.13
18	26.95	84.82	53.20	71.77	64.17	90.29	6.87	8.57	72.11	84.24
19	40.73	64.30	40.54	42.20	71.95	59.59	8.07	9.54	79.62	83.44
20	43.75	71.40	42.50	55.30	79.66	83.63	11.11	12.93	83.58	86.64

	jtpa1dif	jtpa2dif	jtpa3dif	jtpa4dif	jtpa5dif	jtpa6dif	jtpa7dif	jtpa8dif	jtpa9dif	sumofdif
1	.17	.18	.34	.34	.13	.46	.07	.06	.00	1.75
2	.37	.38	.87	.50	-.10	.08	.10	.09	-.09	2.20
3	.16	.18	.12	.38	.17	.34	-.26	.15	-.19	1.05
4	.12	.14	-.19	-.01	.12	.73	.28	.11	.08	1.38
5	.27	.60	.37	1.30	.39	.49	.17	.30	.09	3.97
6	.26	.40	.32	.37	.85	.58	.15	-.04	.02	2.92
7	.27	.34	.27	.39	.35	.44	.27	.04	-.07	2.30
8	.25	.40	.51	1.03	.34	.62	.24	.05	.06	3.49
9	.30	.35	.32	.52	.19	.18	.16	.06	.01	2.09
10	.21	.31	.23	.14	.12	.47	.13	.06	-.02	1.65
11	.38	.58	.65	.50	2.43	.51	.25	.08	.00	5.37
12	.20	.31	.33	.34	.05	.44	-.02	-.02	-.15	1.47
13	.39	.48	.19	.60	.33	.81	.23	.00	.02	3.04
14	.41	.23	.60	.34	.37	1.02	.21	.17	.04	3.39
15	.30	.18	.40	.23	.17	.46	.17	.09	-.05	1.94
16	.24	.51	.22	.32	.53	.75	.29	.13	.09	3.08
17	.50	.66	.78	.49	1.59	.28	.48	.17	.20	5.16
18	.56	.90	.85	.50	2.15	.35	.41	.25	.17	6.14
19	.30	.40	.38	.16	.58	.04	-.17	.18	.05	1.91
20	.13	.66	.26	.33	.63	.30	.05	.16	.04	2.57

	wda	member	jtpalpre	jtpalact	jtpa2pre	jtpa2act	jtpa3pre	jtpa3act	jtpa4pre	jtpa4act
21	NorthEast	0	61.13	65.47	270.41	357.45	48.51	50.38	222.07	284.73
22	Panhandle	0	69.53	83.66	298.90	426.92	60.64	81.00	267.33	394.65
23	PermianBasin	1	65.00	84.41	284.84	402.57	54.05	78.45	247.09	325.72
24	RuralCapital	1	62.52	82.92	278.03	429.64	53.35	93.21	228.85	297.71
25	SouthTexas	0	46.93	80.84	204.93	308.44	34.92	62.47	149.83	190.22
26	Southeast	0	56.07	61.93	261.55	398.46	47.08	55.51	216.33	272.39
27	SouthPlains	1	65.56	83.53	281.04	371.66	50.95	56.67	230.33	471.65
28	LubbockGarza	1	66.49	80.73	293.84	418.11	58.24	74.46	251.36	296.25
29	TarrantCount	1	64.54	80.70	313.56	433.13	46.22	70.00	252.89	348.64
30	FortWorth	1	57.81	72.38	320.11	427.61	51.32	76.92	264.07	290.29
31	Texoma	1	68.53	78.36	296.00	520.97	63.47	62.50	275.73	618.96
32	UpperRioGran	0	57.23	73.87	258.83	326.98	45.90	62.17	212.91	289.11
33	WestCentral	1	69.91	73.83	282.70	486.03	62.06	71.61	246.31	455.63

	jtpa5pre	jtpa5act	jtpa6pre	jtpa6act	jtpa7pre	jtpa7act	jtpa8pre	jtpa8act	jtpa9pre	jtpa9act
21	34.80	46.60	42.28	57.50	71.49	75.04	8.49	8.44	80.50	76.50
22	68.64	85.00	22.11	57.50	74.76	82.72	9.34	9.55	84.64	86.39
23	57.35	63.50	30.39	18.70	72.78	87.14	9.70	10.30	80.02	80.84
24	46.91	59.30	40.78	40.60	79.98	90.15	10.87	12.96	84.17	88.81
25	33.50	32.90	52.42	75.50	63.95	76.92	6.20	8.08	71.50	70.43
26	26.48	43.50	47.54	49.20	71.53	80.61	10.35	11.25	82.56	83.14
27	62.75	73.68	26.64	73.68	70.24	71.43	8.29	8.73	79.24	74.17
28	47.85	76.67	41.50	47.62	72.10	91.89	9.78	8.82	82.90	91.60
29	41.33	69.84	47.34	60.47	74.14	79.70	11.42	12.17	82.12	80.39
30	46.68	58.75	37.92	32.94	72.49	63.12	11.19	11.98	78.00	81.90
31	30.34	58.80	44.07	51.60	74.18	89.86	9.46	11.60	82.74	86.60
32	42.27	47.80	37.33	51.10	65.51	77.45	7.36	7.44	70.93	76.60
33	56.63	86.40	27.31	48.50	73.28	95.16	8.05	8.78	81.59	88.58

	jtpa1dif	jtpa2dif	jtpa3dif	jtpa4dif	jtpa5dif	jtpa6dif	jtpa7dif	jtpa8dif	jtpa9dif	sumofdif
21	.07	.32	.04	.28	.34	.36	.05	-.01	-.05	1.41
22	.20	.43	.34	.48	.24	1.60	.11	.02	.02	3.43
23	.30	.41	.45	.32	.11	-.38	.20	.06	.01	1.47
24	.33	.55	.75	.30	.26	.00	.13	.19	.06	2.55
25	.72	.51	.79	.27	-.02	.44	.20	.30	-.01	3.20
26	.10	.52	.18	.26	.64	.03	.13	.09	.01	1.96
27	.27	.32	.11	1.05	.17	1.77	.02	.05	-.06	3.70
28	.21	.42	.28	.18	.60	.15	.27	-.10	.10	2.13
29	.25	.38	.51	.38	.69	.28	.07	.07	-.02	2.61
30	.25	.34	.50	.10	.26	-.13	-.13	.07	.05	1.30
31	.14	.76	-.02	1.24	.94	.17	.21	.23	.05	3.73
32	.29	.26	.35	.36	.13	.37	.18	.01	.08	2.04
33	.06	.72	.15	.85	.53	.78	.30	.09	.09	3.56