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Third-party quality management audits for automotive component manufacturing: Perceptions and insights into a necessary yet debatable practice

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Third-Party Quality Management Audits for Automotive Component Manufacturing: Perceptions and Insights into a Necessary yet Debatable Practice

by

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DEDICATION

I dedicate this to this to my parents, Walter and Mary Lou. Thank you for always believing in me, giving me strong values, and teaching me the importance of hard work.

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I would like to thank my wife, Carman, for support and love during this process. You ignited the flame for this endeavor, and all along the way, provided me the inspiration to see it through to completion. You put up with the frustrating times and understood when I was unavailable. Thanks, and I love you!

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Finally, I offer many thanks to my outstanding classmates, Mark, Aaron and JT. I cherish the memories.

APPROVAL

Third-Party Quality Management Audits for Automotive Component Manufacturing;

Perceptions and Insights into a Necessary, yet Debatable Practice

Christopher J. Kluse

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Abstract

Third-party quality audits have been a continued practice within the manufacturing community since release of the ISO 9000 standard in 1987. In recent times, many within the manufacturing industry are questioning the value of the audit process. (Sayle, 1995, Sayle 1999, Douglas, 2000, Gordon, 2000, Dalgleish 2006) Consequently, a need exists to better understand the impacts and perceptions of the third-party auditing process. This research used a grounded theory approach to explore the following question: *How do management representatives perceive the third-party audit process?*

Collection of data consisted of 25 in-depth interviews taken from management representatives within the automotive industry. Job titles of subjects included Quality Director, Quality Manager, and Quality Engineer.

Results of the research include (a) the third-party audit process is adequate to assess an organization's quality management system against the ISO/TS16949 standard, (b) the third-party audit process fails to add tangible value for the organization, (c) the relationship between the auditor (registrar) and auditee (organization) represents a significant conflict of interest, (d) the continued audit cycle is redundant and offers diminishing value, and (e) mature organizations fail to benefit from the third-party audit process. Results substantiate the views offered by Sayle (1995 & 1999), Douglas (2000), Gordon (2001), Karapetrovic and Willborn (2002), Beckmerhagen, Berg, Karapetrovic, and Willborn (2004), and Dalgleish (2006). Furthermore, a final model is offered to depict the fundamental changes recommended to improve the audit process.

Suggestions for further research include (a) conducting a quantitative study to demonstrate the financial impact of the third-party audit process; (b) determining if an

organization's quality and customer performance improves over time after becoming ISO/TS certified; (c) conducting a quantitative study of management representatives within the automotive community to determine the percentage that support third-party audit process; (d) completing a case study on a successful, profitable non-ISO-certified manufacturing organization; (e) conducting a Delphi study on the *Kluse Utopian Third-Party Audit Model*; and (f) investigating alternatives to the audit process as a method to determine QMS compliance and effectiveness. Additionally a future researcher may seek to understand how factors such as human resources practices, organizational climate and knowledge management affect an organizations quality-related performance.

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Chapter 1: Introduction and Background

Introduction

Third-party quality audits have been an accepted practice within the manufacturing industry for several decades. In the late 1980s and early 1990s, the audit process gained enormous momentum via the introduction of international standards such as ISO 9001, ISO 14000, and industry-specific standards such as QS 9000 (subsequently replaced by TS 16949). Each of these compliance standards requires a third-party audit to evaluate the organization's management system against the requirements outlined in the standard. In most situations, compliance to these management standards is required by customers; therefore, the third-party audit is paid for by the auditee (i.e., organization subject to the audit). The intent of these standards and audit practices was to reduce the number of audits bestowed upon an organization; however, it simply has not achieved its goal.

The automotive industry developed process-specific assessments (sometimes executed as second-party audits) as a method to audit a process against known best practices and not against a set of generic requirements. Customers are using such assessments to conduct audits of their supplier's vital processes, thus reducing the value of the third-party certificate which, in principle, evaluates the effectiveness of all process at a registered facility. An organization with 400 employees will pay approximately $15,000 for a complete audit cycle that typically consists of an initial registration audit (full systems audit) followed by five surveillance audits. An audit cycle begins with an extensive, full-system registration audit followed by five subsequent surveillance audits, typically conducted bi-annually. In addition to hard dollars spent maintaining certification, vast resources are consumed preparing for and participating in the audit. According to The International Organization for

Standardization (ISO) (2010), approximately 571,377 organizations are ISO 9001 registered within North America (40,655) registered) and Europe (530,722). Based on this estimate, and using an employee count of 400, approximately $7,713,589,500 (see appendix E) is potentially spent every 3 years simply on audit fees and administrative costs imposed by the register.

Additionally, this approximation estimates the cost of organizations certified to ISO 9001; but if other standards such as TS 16949–Quality Management System Guidelines for the Automotive Industry, ISO 14001–Environmental Management System Guidelines, and ISO 13485 Quality Management System Guidelines for the Medical Device Industry are considered, the total cost spent for a 3-year audit cycle would be exorbitant. Placing a value on the use of company resources is somewhat difficult. Nevertheless, it is hard to dispute that managers, engineers, clericals, and team members participating in the audit process devote significant time to it. For example, recent audit results shared by a major automobile supplier (a facility approximately 400 employees) indicate the total cost of resources for a successful registration audit is conservatively estimated at $16,000. This estimate is based upon (a) audit administration costs; (b) man-hours consumed preparing for the audit; (c) time spent by management as guides for the auditors; (d) disruption of production activities; and (e) resources dedicated to addressing and responding to the audit findings. These costs are estimates for a facility with approximately 400 employees; subject 5, quality director, agreed these costs estimates are valid (represent actual audit costs for an organization) during the study interview.

Regardless of organizational magnitude, all companies subject to the third-party audit and registration process are subject to the same cost and use of resources. Based on these

costs, and the magnitude of the potential organizational burden resulting from third-party audits, one may contemplate how such a costly process became necessary and mandatory. The answer to this question lies within the history of third-party audits. By examining the evolution of third-party audits, it becomes evident that these audits developed to fulfill an industry need. However, due to various circumstances and events, such audits have become antiquated and non-effective.

Evolution of Quality Audits

Swift, Humphrey, and Gor (2000) provided a brief account of the history of quality audits. Figure 1 depicts this historical summary.

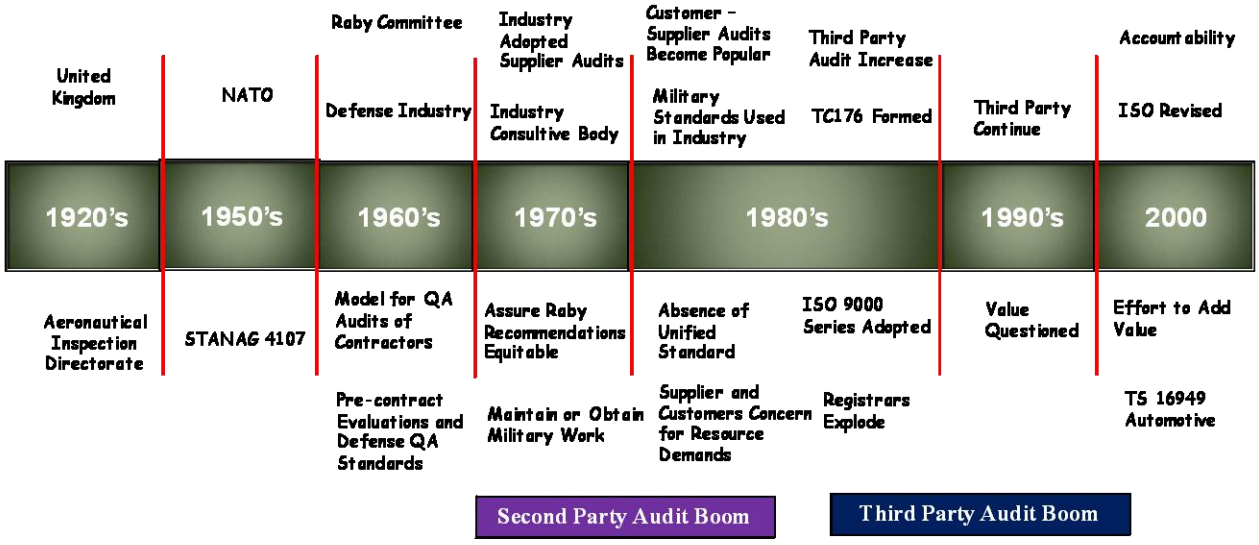

Figure 1. Audit milestones based on the account of audit history. Adapted from "Great Expectations?: The Dubious Financial Legacy of Quality Audits," by T. Swift, C. Humphrey, and V. Gor, 2000, *British Journal of Management, 11*, 31–45. Copyright 2000 by the British Academy of Management.

Additionally, the discussion that follows is an account of quality audit history reprinted with permission and written by Swift et al. (2000).[1]

> The high visibility of quality audits to standards such as ISO9000 may lead to a perception that quality audits are very much a 1990s phenomena (Russell and Regel, 1996). However, quality audits have been popular tools to improve quality, productivity and profit for several decades (Thresh, 1982; see also Mills 1976; Palmer, 1977; Van Dine, 1978). In fact, quality auditing and 'approved supplier status' (certification or registration) as we know it today can be traced back as far as the1920s in the UK to the Aeronautical Inspection Directorate (Drew, 1969; Souch, 1976). Later, during the 1950s the North Atlantic Treaty Organization (NATO) standardized an agreement (STANAG 4107) whereby a National Quality Assurance Authority in a manufacturing country could undertake evaluations of the competence of the supplier organization on behalf of the purchasing country.
>
> The experience of the defence industries with quality audits to ensure assurance and quality control subsequently provided a model for the wider business community. This was due in part to the work of the Raby Committee in 1968 and to the Industry Consultative Body set up in 1971 to ensure that the Raby recommendations for pre-contract evaluations of supplier systems and rationalization of defence quality assurance standards were 'equitable, practical, economic and acceptable to both parties' (Souch, 1976, p. 106; see also Allaway, 1977). Private sector companies initially implemented quality control systems based on standards to

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[1] From "Great Expectations?: The Dubious Financial Legacy of Quality Audits," by Swift, T. A., Humphrey, C. and Gor, V., 2000, British Journal of Management, 11, 31–45, Copyright 2000, by British Academy of Management, Reprinted with Permission.

gain or maintain contracts with government agencies (Ho, 1995; Johnson, 1970; Mills, 1989). During the late 1960s and throughout the 1970s, auditing of supplier capability to standards specified by the customer became accepted practice outside the defence industry. Company-wide quality assurance schemes thus became firmly ensconced in the corporate landscape (Thresh, 1982). In the absence of domestic standards, private sector organizations used the available military standards to establish the status of supplier quality systems (e.g. MIL-Q-9858AQuality Program Requirements for Industry in USA; 05-21 MOD series in the UK; and also NATO documents such as AQAP-1 NATO Quality Control System Requirements for Industry). Each of these bodies also provided other standards and documents to guide the evaluator or auditor as to the process of quality systems auditing, including typical questions to address. The military standards had a far-reaching impact on the subsequent national domestic standards for quality system requirements and auditor guidance standards (such as British Standards BS4891 (1972 Guide to Quality Assurance); BS5719 (1974 Guide to the Evaluation of Quality Assurance Systems); BS5750 (1979); Australian Standard AS1821-1823 (1978); Australian Standards Series AS3900 (1987); Canadian Standards, CAN-CSA-Z299.1 through CAN-CSA-Z299.4, 1981; India too, had quality systems standards by the mid-1970s). This brief review of standardization demonstrates that quality auditing has a longer and more coherent history than most texts on quality assurance would lead one to believe (for a comprehensive comparison of the elements of early British quality system standards, see MacDonald, 1977 and Periera, 1987).

Arrangements to undertake a quality audit were generally agreed between the two parties to the contract, customer and supplier. Quality auditors from purchasing (customer) organizations would audit their supplier organizations, first to establish capability in respect of a contract, and then to conduct surveillance audits as the term of the contract progressed. There was always scope for third-party assessment (i.e. external verification, or audit, of the supplier's stated quality specifications by a party not subject to the contract – in effect a second party proxy), although this did not become a common practice in industry until the mid-1980s. With many customers and suppliers interacting, the resource implications of multiple audits or assessments and the compatibility or suitability of national quality standards was a challenge for quality assurance (audit) departments. There was a veritable audit explosion in the late 1970s (see Sayle, 1981) and calls were made for more uniform/standardized measurement of supplier capability and a reduction of multiple customer audits of a single supplier (Hearn, 1987). To encourage cross national trade and improve standardization for the supplier assessment/quality audit process, the International Organization for Standardization (ISO) commissioned a Technical Committee (TC176) to develop and agree a common set of criteria. This resulted in the ISO9000 series of standards being issued in1987, which subsumed most of the requirements of previously independent national standards such as BS5750.3. Although the intent of the ISO9000 series was the same as its predecessors (to enable verification of the applicability of the implemented quality program and its ongoing effectiveness), the ISO9000 series claimed to be a generic "model for quality assurance."

The international standardization of quality system standards (ISO9000) resulted in a dramatic rise in the scale of external, third-party assessment and certification. External certification bodies (such as SGS Yarsley ICS, Lloyds Register Quality Assurance, Bureau Veritas Quality Assurance, Det Norske Veritas, British Standards Institution) are increasingly used by organizations seeking ISO9000 audit and certification. These bodies are themselves accredited by regulatory agencies (such as the UK Accreditation Service (UKAS) and the Joint Accreditation Scheme of Australia and New Zealand, JASANZ) to conduct external quality audits. They audit organizations' management systems to assess whether they satisfy the requirements of a particular standard.

In the UK the move to formal external audit and certification of quality systems was instituted by the Government's 1982 White Paper on 'Standards, Quality and International Competitiveness.' This explicitly promoted independent audit and certification schemes and sought to develop the necessary supporting infrastructure (including the creation of a national accreditation body and the specification of rules/criteria to be satisfied by 'certification' bodies and individual quality assessors). The first certification bodies were accredited by NACCB (the National Accreditation Council for Certification Bodies now the United Kingdom Accreditation Service, UKAS) in March 1986 and in the UK there are now well in excess of 70 such bodies in existence. The individual auditors and assessors working for the certification bodies must be both professionally qualified, operate within nominated industries, and undertake a specified number of audit activities within a prescribed period (Hutchins, 1997). (pp. 32–33)

ISO 9000 standards quickly gained popularity, and registration bodies surfaced throughout the globe. Organizations believed that ISO certification offered a competitive advantage over non-certified suppliers while concurrently, customers began mandating ISO 9000 registration as a requirement for sourcing business. As a result, the late 80s and early 90s realized a tremendous increase in third-party audits due to the need for certification. The third-party audit increase influenced the growth of the consulting industry, which in turn helped increase the urgency for organizations to obtain ISO 9000 registration. Oversight boards were implemented to oversee the registration bodies, administer and set guidelines for third-party audits, and develop standards for auditor competency and qualification. After nearly a decade of this self-sustaining, expanding cycle (see Figure 2), organizations and individuals began to question the value of the process.

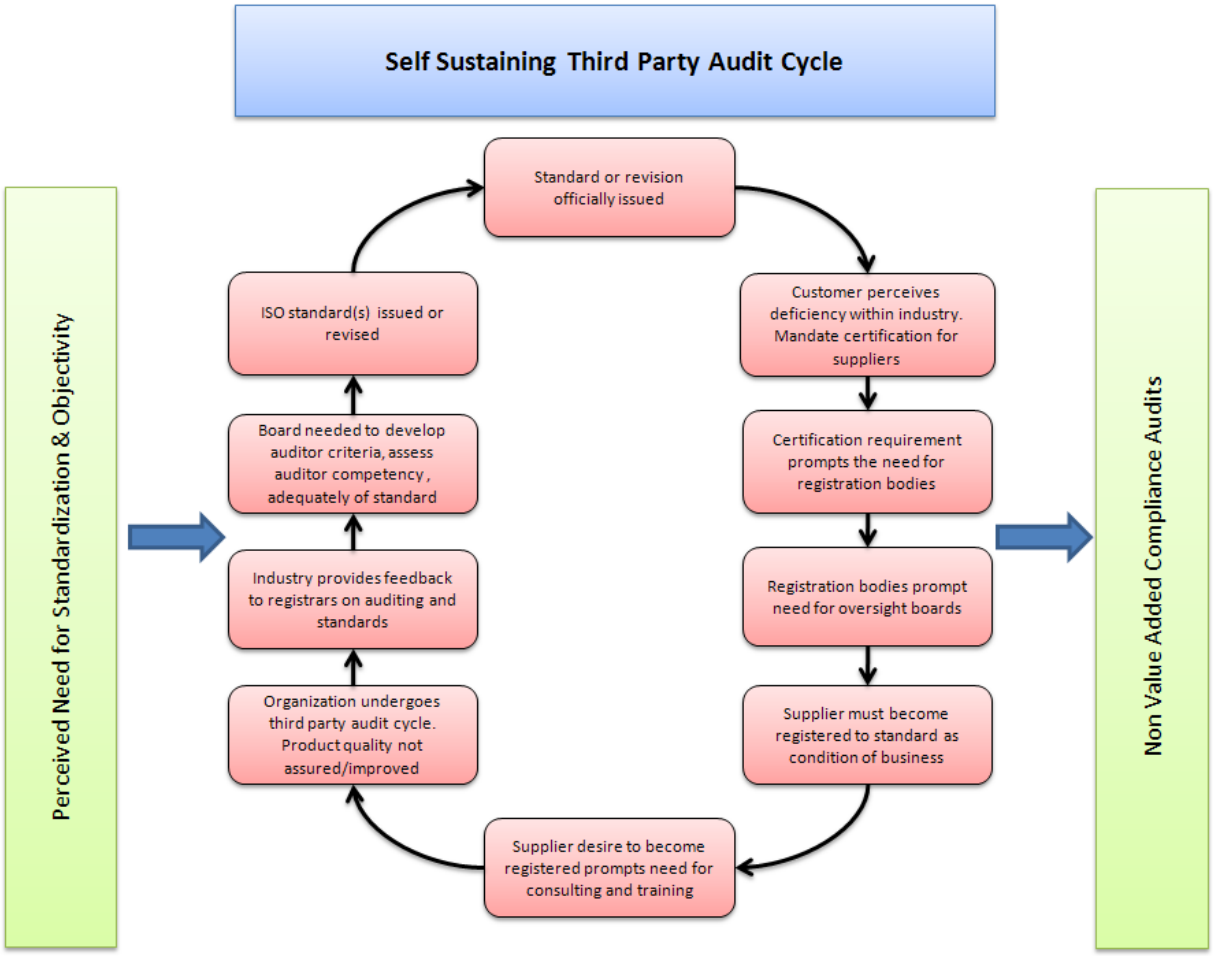

Figure 2. Kluse self-sustaining audit cycle. The perceived need for standardization and third-party audits prompted an entire industry.

Third-Party Audit Critique

Although the ISO standards and auditing methodology have been revised since 1987, the overall third-party audit process is considered flawed by some experienced professionals. For instance, Sayle (1999), a recognized authority in the auditing field, suggested the three critical areas within the third-party audit and registration scheme that are flawed (a) current quality standards, (b) the registration process, and (c) the auditor performance.

Regarding weakness of quality standards, Sayle (1999) emphasized that a quality standard cannot be regarded as desirable unless (a) principles of EVA or "economic value

added auditing" are included; (b) the quality standards possess a requirement for the organization to have a structured management system in place throughout the entire corporation; and (c) the quality standards must mandate both internal audits within the facility and audits covering the entire supply chain to the organization. The internal audits and supplier audits recommended are not intended to be an additional layer of third-party audits. Competent audit personnel employed by the organization must conduct these audits (Sayle, 1999).

Concerning the registration process, Sayle (1999) asserted,

> The performance of the registration industry is little short of scandalous. Recent examples, out of many, illustrate the inadequacy of their service: The vice-president of production for a high profile manufacturer of industrial equipment alleged to me the certificates for its North American factories had been "bought." (Registrar performance heading, para. 1)

Furthermore, Sayle (1999) cited an example regarding influence of the corporation on registrar performance:

> For its assessment, apparently a major registrar regularly ignores the mandated on-site time and scope requirements. When the registrar is threatened with loss of contract, major deficiencies are downgraded to "observations": the audit scope, actual departments and personnel to be audited, are selected by the auditee. This shambolic disgrace occurs despite product recalls involving safety systems produced by the auditee. (Registrar performance heading, bullet 2)

Last, Sayle (1999) cited three instances that challenge audit effectiveness and performance. In the first instance, Sayle (1999) speaks of a "major international company"

who had auditors wishing to sit for the American Society for Quality (ASQ) certified quality auditor (CQA) exam (Auditor training and qualification schemes heading, bullet 1). During the preparation, according to Sayle (1999), these trained auditors could not develop process flow charts, nor could they depict a process; additionally, these individuals were also unable to analyze a given process. A second example references the big three automotive original equipment manufacturers (OEM). In 1999, the big three referred to General Motors, Ford Motor Company, and Chrysler Corporation. Sayle (1999) maintained that these organizations are increasingly conducting their own supplier assessments due to a lack of confidence in the supplier's own internal audits and meaningless certificates awarded by the third-party registrar.

Sayle's (1999) final illustration involved an OEM's process sign off requirement that is often imposed upon Tier I suppliers manufacturing product for the OEM. As part of the Production Part Approval Process (PPAP), the OEM often requires a member of the OEM quality function to verify, on-site at the supplier location, the manufacturing process used to produce the component supplied to the OEM. Sayle referred to this process in the keynote address of 1999, and this practice continues in 2012. Sayle contended this process exists because "they know such a certificate does not mean the registrant has a reliable system" (Auditor training and qualification schemes heading, bullet 3). From this statement, it is apparent that Sayle believes that OEMs within automotive manufacturing do not give credibility to the third-party audit and registration process since they are still willing to commit resources to auditing their supply base. Although Sayle's (1999) statements were delivered over 10 years ago, each account is decidedly relevant and applicable to today's quality standards, third-party audit practices, and registration schemes.

Based on the current economic conditions, the focus on cost-cutting initiatives, and the maturity of the organizations' management systems (relative to standards), the entire third-party audit system needs to be reviewed, evaluated, and modified in order to accommodate the needs of the organization. The manufacturing and service industries subject to registration to an international standard are questioning the necessity and effectiveness of this audit process.

Statement of the Problem

After more than two decades of using the third-party auditing process, many quality and manufacturing professionals do not see the value in or necessity of continuing with the third-party audit process (Dalgleish, 2006; Douglas, 2000; Gordon, 2001; Sayle, 1995). Consequently, a need exists to better understand how management representatives perceive the third-party audit process.

Nature and Significance of the Problem

Academic critique and peer-reviewed literature regarding the third-party audit process is sparse; therefore, there is need to enhance this knowledge base via an academic evaluation of the audit process. While there is a plethora of articles, textbooks, audit organizations, training institutions, and consulting bodies within the third-party audit community, it is rare to find an overall evaluation regarding impacts of the third-party audit system. As noted by Swift et al. (2000), "Despite the rising significance of this international audit movement affecting hundreds of thousands of organizations world-wide, there has been limited interest in, or critique of, the practice of quality audit by academic auditing researchers" (p. 31). Gordon (2001) pointed out a fundamental perception associated with the third-party audit system, and presented concerns with the audit process:

> The actual results of this auditing system are mixed. Many fine registration companies are now doing business, but some are not delivering what they advertise – unless the objective is a meaningless piece of paper. Certification has become a big deal involving lots of money. (p. 81)

Gordon referred to the certification or registration as a "meaningless piece of paper" while implying that this piece of paper is costly (p. 81). This claim by Gordon may be reflected in the International Organization for Standardization (2010) report on the total number of certifications that indicated a 12.6% decline in North American ISO 9001 registrations for 2009 when compared to 2008, and a subsequent 12.7% decline for 2010 when compared to 2009 registrations. A similar decrease is evident with the number of ISO/TS 16949 registrations, which have declined 11.6% from 2008 to 2010. The decline in North American ISO registrations could reveal that the ISO certification is losing credibility and is merely becoming a meaningless piece of paper. Organizations are generally obligated by customer requirements to be third-party registered to an international standard (i.e., ISO 9001, ISO 14000, TS 16949, etc.) as a requirement for the award of new business or extension of continued business. As a result, the organization is required to (a) contract and pay for the services of a third-party registrar to conduct quality management system audits; (b) comply and address audit findings as presented by the third-party auditor; and (c) continue this infinite audit cycle. At some point this process become redundant and pointless. Ironically, many of these same customers requiring a third-party assessment also conduct second-party audits on suppliers as a method to assure the existence of an effective quality management system.

In the preface of "The Management System Auditor's Handbook," Kausek (2006) asserted,

> As a management systems auditor for the last 20 years, I have been both encouraged and frustrated by the changes in management system auditing that have taken place over the last decade. Auditing practices have evolved toward more value-added functions. Companies are streamlining their management programs, with a focus on efficiency and the elimination of waste. At the same time, more attention is now being placed, and rightfully so, on the effectiveness of auditing systems. (p. xv)

Kausek (2006) continued the discussion and concluded,

> While the management systems standards and practices have rapidly evolved, the competency and capabilities of auditors have failed to keep up. Auditing continues to be seen as a collateral duty performed by part-time and often ill-prepared auditors. Auditors still tend to identify administrative deficiencies over more important weaknesses in system support or effectiveness, and management teams still grumble about audit results. (p. xv)

Congruent to Kausek's view, the case study presented by Beckmerhagen, Berg, Karapetrovic, and Willborn (2004) concluded,

> Fair or not, continuous improvement of quality auditing is urgently called for. However, the lack of available literature or standards on the effectiveness of quality audits is appalling. Most quality audit textbooks discuss either the effectiveness of the audited management system (e.g. Mills, 1989; Sayle, 1985; Russell, 2000), or of the audit program management (e.g. Russell Regel, 2000) but not of the audit itself. (p. 14)

Furthermore, Beckmerhagen et al. (2004) asserted,

> As a general rule, audits must serve their intended purpose to be effective. But what is the purpose of a QMS audit? Mere inspection of compatibility with management system standards is obviously insufficient when such standards themselves must be adapted to change (e.g. witness the revisions of ISO 9000 and ISO 14000 series standards) and when the business environment demands not the status quo, but continuous improvement. (p. 15)

Although Beckmerhagen et al. do not specifically target the third-party audit system, the concepts and principles surrounding any quality management system (QMS) audit are directly applicable to third-party audit practices as the standards and auditing principles are comparable.

Additionally, since the third-party audit function is generally mandatory for organizations within a particular industry, it is rare for one to research and publish data that may suggest an entire for-profit industry is not effective and provides minimal value for the required investment. Publications such as Sayle's (1995) "Auditing: Time for a Rethink and Overhaul" explore the main shortcomings of the audit process, but few researchers have undertaken an academic approach to assessing perceptions of the third-party audit process. Authors such as Karapetrovic and Willborn (2000) addressed the methods to assure audit quality assurance and effectiveness, whereas Hunt (1997) evaluated auditing from an alternative prospective and stated,

> The primary responsibility of a quality auditor is to verify compliance with agreed-upon standards. The auditor may perform this duty as a bean counter or broaden his or her view by striving to become something of a seed planter, using audit fieldwork

> observations to plant the seeds of cultural change when the opportunity presents itself. (p. 27)

Hunt's statement captures the essence of third-party audits. The range of auditor style and technique varies from auditor to auditor, thus the often subjective and occasionally unstructured audit process leads to ambiguity for the auditee. Based upon the research and perspective of these authors, it is clear that (a) an academic in-depth investigation into the third-party audit process is necessary; (b) the audit system is not producing the intended results; (c) there is need to understand perceptions of the audit process; and (d) it is time to develop an innovative, fresh approach to modifying an antiquated practice overdue for a systemic overhaul.

Registrars and consulting firms often promote the value of the third-party certification process. According to Quality Assurance Solutions (2010), quality audits (a) make management aware of problems, (b) act as an effective continual improvement tool, (c) provide input into management decisions, (d) accesses training and effectiveness, and (e) indicate management support of the quality program. Additionally, Lloyd's Register Group (2010) stated that the benefits of registration (third-party assessment) are (a) improved product, process and service quality; (b) increased customer satisfaction levels; (c) improved productivity and less waste; (d) possible competitive advantage; (e) a clear demonstration of one's commitment to quality; and (f) increased ability to work with the many organizations when there is a contractual obligation or expectation. In congruence with published literature, the stated benefits are not validated nor do manufacturing professionals entirely agree with these apparent audit benefits. Furthermore, Campany, Hooker, Ozuna, and Tilburg (2000) concluded that organizations seek registration (or third-party assessment) for

the following reasons (a) to comply with regulatory requirement, (b) to meet customer or supplier requirements, (c) to maintain marketing advantage, (d) to create cost reductions, and (e) to increase organizational profits. One can reasonably conclude that the published benefits of registration compared to the reasons organizations pursue third-party assessment are not consistent. This may be true because the third-party audit and registration process has become big business, and published benefits are methods used to attract future business. Additionally, this further supports Sale's (1995) claim that third-party audits are, by definition, not really third-party audits since the customer voluntarily hires the audit body and, in turn, the audit body has no genuine jurisdiction or enforcement authority over the customer.

Considering the recent economic conditions of 2009, future predictions for a shrinking industrial base in the United States, an increase in second-party audits, and the trend for organizations and individuals to cast doubt on the value of third-party audits, research focused on the third-party audit system, which is perceived by many as non-value added, is relevant and necessary.

Objective of the Research

This research served to (a) describe the perceived benefits, inefficiencies, and shortcomings of the third-party audit system and certification process; (b) summarize the insights of manufacturing professionals regarding the third-party audit system; (c) offer an alternate approach and changes to the third-party audit process based upon results of the research questions to modify the current third-party audit system; and (d) add to the scarce literature and academic critique of the third-party audit system.

Research Questions

The current research was framed by six research questions:

Research Question 1. Do management representatives perceive the third-party audit process as beneficial and thus deem the audit process as value added?

Research Question 2. Do management representatives believe the third-party audit process acts as a change agent or impels continual improvement within the organization?

Research Question 3. As currently defined, are the current third-party audit practices effective or is there a need for a system overhaul?

Research Question 4. Do the audit findings lead to cost savings and process improvements that justify the third-party audit tangible and intangible costs?

Research Question 5. Do management representatives consider the third-party auditor as technically astute and qualified to audit their respective facilities?

Research Question 6. Is a third-party audit scheme and registration to ISO 9001:2008 and/or TS16949:2009 necessary and relevant in 2012?

Delimitations

The subjects' organizations consist of those within the U.S. involved in automotive component manufacturing that are third-party registered to either ISO 9001:2008 and/or TS 16949:2009. The individual subjects interviewed either serve currently as a management representative or previously served as a management representative within an automotive component manufacturing organization. The individual must have minimally experienced one full audit cycle consisting of an initial registration audit and periodic surveillance audits (annual or bi-annual). This represents a 3-year cycle.

Limitations

The researcher used personal interviews to gather qualitative data. The interviews followed a semi-structured format. This allowed the researcher to ask exploratory questions based on the interviewee response to clarify statements and generate in-depth information. Consequently, this technique, while effective, can introduce researcher bias. Therefore, the researcher used a semi-structured interview format to minimize bias while questioning the subject. Furthermore, this researcher is not a trained interviewer. Since the researcher has experience with this subject, the interviews were based on the interview protocol (see Appendix A), which lessened the need for an experienced interviewer.

Assumptions

Since the final theory or conclusions regarding the current status of the third-party audit process were derived from interviews drawn from a criterion sample, the researcher assumed the selected sample would accurately depict the traits of the population. A criterion sample is one in which all subjects included within the study have experienced the phenomenon under investigation (Creswell, 2007). Responses from participants are understood to be accurate, honest, and without personal bias. Furthermore, the individuals selected to participate in the interview process were knowledgeable, experienced individuals whose input would accurately portray the viewpoint and attitudes of the population.

Definitions of Terms

Audit. An audit is defined as the on-site verification activity, such as inspection or examination, of a process or quality system, to ensure compliance to requirements. An audit can apply to an entire organization or might be specific to a function, process, or production step (Nelson & Daniels, 2007).

Certified Quality Auditor (CQA). The Certified Quality Auditor is a professional who understands the standards and principles of auditing and the auditing techniques of examining, questioning, evaluating, and reporting to determine a quality system's adequacy and deficiencies. The CQA analyzes all elements of a quality system and judges its degree of adherence to the criteria of industrial management and quality evaluation and control systems (American Society for Quality, 2004).

Certification body. A certification body is defined as an organization approved by the International Accreditation Forum, Inc. (IAF) to assess the management systems of an organization against an accepted standard.

External audit. External audits are generally considered second- or third-party audits (ISO 9000:2000, 2000).

First-party audit. A first-party audit is an audit conducted by an employee of the organization within and on the organization's processes, management systems, procedures, or any element of the business to ensure compliance with stated requirements (See also the definition of internal audit).

Intangible audit costs. Costs incurred by the auditee as a result of the third-party audit are defined as intangible audit costs. These include use of organizational resources to prepare for the audit, participate in the audit, and close the audit.

Internal audit. Internal audits—sometimes called first-party audits—are conducted by, or on behalf of, the organization itself for internal purposes and can form the basis for an organization's self-declaration of conformity (ISO 9000:2000, 2000).

ISO. ISO is the abbreviation for the International Organization for Standardization, which is the largest developer of voluntary standards.

Quality Management System (QMS). To direct or control and control an organization with regard to quality (ISO 9000:2000, 2000).

Registrar. Registrar is the generally accepted U.S. equivalent term for "certification body" (Nelson & Daniels, 2007).

Second-party audit. Second party audits are conducted by parties having an interest in the organization, such as the customer, or by other persons on behalf of the customer.

Tangible audit costs. Those costs that are directly paid by the organization (auditee) to the registrar conducting the audit are defined as tangible audit costs. These include administrative costs, auditor expenses, and certification fees.

Third-party audit. Third-party audits are conducted by external, independent organizations. Such organizations provide certification or registration of conformity with requirements such as those of ISO 9001 and ISO 14001:1996 (ISO 9000:2000, 2000).

Summary

Third-party audits and certification processes have been in place for several decades. The intent of this chapter was to describe how the third-party audit process has evolved, present existing criticisms of the process, and to stress the need to investigate the process to improve and justify future third-party audits. As it stands, critique of the process continues to escalate while changes appear stagnant. Research is necessary to determine whether the process is effective, reliable, in need of change, and worth the money spent by each organization. Through personal interviews and a review of existing literature, an academic, in-depth investigation of the third-party audit system may provide the necessary foundation to promote value-added change within the manufacturing and audit community.

Chapter 2: Review of Literature

Introduction

The literature review focuses on two subjects (a) evaluation of existing publications regarding the effectiveness, improvement, and analysis of audits; and (b) literature related to the research methods used to execute this research. Review of existing audit literature is pertinent since the focus of this research is to demonstrate that the audit process has been a present-day topic of debate within various segments of industry and academia for quite some time. Moreover, the literature will reveal the need for change within the current audit process. The literature related to the qualitative method, grounded theory, is presented to substantiate this method as an appropriate, viable method suitable for this research.

Literature Related to the Audit Process

Lack of academic literature. Literature regarding the effectiveness or inefficiencies of the third-party audit process is abundantly scarce. Beckmerhagen et al. (2004) acknowledged this lack of information:

> However, the lack of available literature or standards on the effectiveness of QMS audits is appalling. Most quality audit textbooks discuss either the effectiveness of the audited management system or of the audit program management, but not of the audit itself. (p. 14)

Furthermore, Swift et al. (2000) asserted, "Despite the rising significance of this international audit movement affecting hundreds of thousands of organizations world-wide, there has been limited interest in, or critique of, the practice of quality audit by academic auditing researchers" (p. 31).

Third-party audit expert critique. Sayle (1995), a noted expert in the field of management audits, has frequently commented on the third-party audit process. Sayle's views are congruent with the current author's perspective and highlighted many of the shortcomings of the current third-party audit process. Sayle (1995) discussed the inefficiencies of third-party audits and suggested four crucial audit principles in need of radical improvement. Following is a review of each of the four principles.

Sayle: The role and conduct of audits. Sayle (1995) contended the current third-party audit places undue emphasis on the past; however, what is really needed is future focus and preparing the organization for future challenges. In order to accomplish this, an auditor must be cognizant of technology trends and understand the economic climate and current business practices. According to Sayle (1995), very few auditors fulfill this obligation. Furthermore, the audit role has been reduced to meticulous faultfinding over trivial content. The audit focus is on non-strategic business items such as calibration stickers and work instruction revision levels; consequently, the audit report rarely concludes with suggestions to reduce cost or improve efficiency. According to Sayle,

> Far too many CEOs and senior managers believe that auditors can only nit-pick about calibration stickers, document revision numbers and similar matters. These are hardly of strategic value in major business decision making situations, which is why most executive refuse to spare the time to attend exit interviews. (p. 250)

While Sayle (1995) contended that audits lack proper perspective and focus, his theme turned to the auditors themselves who often, as Sayle (1995) stated, "behave like Genghis Kahn" (p. 251). Although this claim may be embellished, the point is clear: modern day auditors often initiate corrective actions against organizational processes as if they gain pleasure from being

able to exhibit control over the auditee and respective organization. Hence, registration bodies and current qualification rules do not require personality assessments of auditors, yet due to the behavior described by Sayle, one can reasonably substantiate the need for personality profiling.

The argument regarding role and conduct of audits concludes with a listing of personal encounters during the present author's audit experience. Of most importance is the allegation that certain registration bodies "sell out" by acquiring the majority of their accounts from a single, large organization. Even though this practice is not considered unethical or improper, the conflict of interest is apparent. If a registration body has, for example, 75% of their business with a single entity, it allows the organization to gain vast leverage over the certifying body, thus dictating unwritten rules and desired practices. The current author will cite specific examples for this conflict of interest within the final conclusions of this study.

Sayle: Auditor training and qualification process. Too much focus is placed on teaching the ISO standard content when emphasis should be on management systems and how they operate. Auditor curricula lack comprehensive training in areas such as auditing procedures, ethical considerations during an audit, human factors involved in an audit, business management system design, and knowledge unique to specific industries (Sayle, 1995). Quality management system audits are audits of management systems; therefore, to audit a management system, one must have experience or knowledge regarding an array of management systems. Sayle (1995) asserted that training curricula are too focused on teaching the ISO standards, and contemporary training disregards the review of management principles. A review of the American Society for Quality Certified Quality Auditor body of

knowledge demonstrates the flaw in the training process; understanding of management systems is certainly an exceptionally minor portion of the required knowledge.

Regarding auditor qualification, an apparent inadequacy stems from the lack of accountability. The registration schemes and the people involved are not practicing auditors and are too far removed from the audit profession, thereby rendering the scheme ineffective. Moreover, the registrars, or assessors, have significant representation when making auditing rules, so a conflict of interest exists; consequently, the scheme often suits the needs of the assessor and not the ultimate customer. Sayle (1995) presents a particular example of inconsistent auditor qualification. Currently, for an internal auditor to be qualified, one must take 16 hours of training while the external auditor is required to endure 36 hours of training. This rule suggests that the internal audit is far less important than the external audits, which is arguably a flawed rationale (Sayle, 1995). As a result, Sayle (1995) believed the leaders defining the rules for assessor schemes are not competent to develop the vision for the auditing profession.

Sayle: Quality standards. Quality standard revisions (ISO 9000) have taken enormous amounts of time to develop, and once completed, it was immediately suggested the current version was already in need of further review. Standard development committees are often composed of members who are not necessarily audit professionals, a concept which is fundamentally unsound. Committees that develop standards should be composed of individuals with vast field experience, not self-proclaimed quality professionals who may have never conducted a single audit. Auditors are the individuals who witness firsthand the systems that are effective and deal with quality standard application and interpretation; therefore, it is only logical to assume auditors should be part of the standard development

process, yet auditors are not involved. Often the registrars are part of developing the standards which, in principle, suggests a conflict of interest (Sayle 1995).

The sole focus by quality professionals on organizational compliance to the standards has effectively taken away from centering on value-added activities such as TQM or continual improvement programs. Quality managers may use a vast portion of their available time simply attempting to facilitate and comply with the ISO standards. Standards as written are not product focused nor do they consider the critical human aspects of an organization such as culture, ethics, and morals (Sayle, 1995).

Sayle: Certifying bodies. Registrars or certifying bodies, by definition, do not perform third-party audits. Since the auditee contracts the registrars to volunteer to conduct the audit, the audit is, by definition, first-party. A true third-party audit is conducted by an independent organization with agreed-upon enforcement authority. The client hires the registrar to voluntarily audit the organization which, in principle, is no different than hiring a consultant to conduct an internal or first-party audit. Consequently, Sayle (1995) argued the certificate granted is meaningless since the registration body clearly has no authoritative leverage over the organization. A true third-party audit is "one whose performance, timing and conduct is decided by a regulatory body possessing the authority to interpret the applicable regulations, codes and standards as required" (Sayle, 1995, p. 255). Therefore, an example of a third-party audit would be the EPA auditing a chemical manufacturing firm for compliance to Federal EPA regulations. Clearly, this is not the same relationship a registrar has with a paying client (i.e., customer). Sayle (1995) suggested abolishment of third-party audits in lieu of sector-specific assessment schemes.

Sayle's (1995) persuasive yet debatably biased views of third-party management audits are supported by others; however, these authors choose to sustain Sayle's views from a different perspective. At the crux of audit dissatisfaction is the question of audit value and effectiveness. Therefore, the overall process of third-party audits is not necessarily the central focus; however, the audit methods to conduct value added audits *within* the current agreed upon scheme becomes significant.

Audit effectiveness. Beckmerhagen et al. (2004) recognized the need for improvement of QMS audits as well as improvement to the overall auditing process. Citing examples of recent cases within the nuclear industry in which audited companies experienced failure, flaws and risk associated with third-party audits were examined. Within the discussion, Beckmerhagen et al. noted that QMS auditing was heavily criticized in the Ford Explorer roll-over case. In this case, Ford attempted to hold the certifying body, or registrar, accountable because during the audit process the failure was not identified. Regardless of one's view on audits, the debate whether audits should focus on the product, the system, or both, the entire audit discipline and audit effectiveness is being consistently challenged. As Beckmerhagen et al. (2004) stated,

> Considering the old adages about audits in general and the new incidents in quality auditing field, it is not surprising that auditors and auditing have come under serious scrutiny. Fair or not, continuous improvement of quality auditing is urgently called for. (p. 14)

In an attempt to define quality audit effectiveness, Beckmerhagen et al. challenged the nature of third-party audits. To be effective, they argued, the audit must fulfill the intended purpose. Therefore, if the intention of a QMS audit is to demonstrate compliance with an

accepted standard such as ISO 9000, the outcome of an audit fails to meet the expectations of the customer or auditee. The manufacturing community does not look to maintain status quo and needs dynamic change within the international standards and audit principles to provide effective audits. Accordingly, an audit process must be able to change with the needs of the industry to render audits effective; unfortunately, standards and practices do not keep up and often fail to provide valuable results. Beckmerhagen et al. (2004) ultimately defined an effective audit as "the joint probability that the audit will be suitable, reliable, available, maintainable, and valuable" (p. 16). Further, Beckmerhagen et al. presented an essential concept: if safety is involved, the audit outcome is reliant upon how well the auditor(s) understand and manage the risk associated with erroneous findings and or inaccurate conclusions about the product or system. Although these authors specifically mention safety, this concept is presumably universal for all audits regardless of whether the risk is or is not safety related. Eleven principles of effectiveness are proposed; each carry contemporary relevance and can be adapted to enhance the current audit process. Of most notable importance are principles 3, 4, and 11. Principle 3 suggests that criteria for audit performance be developed and clarified prior to beginning an audit. The criteria should apply to that particular audit location and assignment; therefore, auditor expectations are known and agreed upon by the auditor and the client. In support of the latter, effectiveness principle 4 states that all criteria is fact-based with an associated quantifiable measure. Therefore, using these principles, when an audit begins, performance deliverables are documented and agreed upon by both the auditor and auditee. With an objective, agreed-upon evaluation scheme in place prior to the audit, the chances of audit success and client satisfaction are seemingly improved. Thus, principle 11 states,

> All parties interested in the successful audit performance, including the client, the auditee, and the audit management, should be involved in the process of determining audit effectiveness. These parties commonly provide valuable input for the performance evaluation, especially when criteria and measurements are known. (Beckmerhagen et al., 2004, p. 17)

Principle 11 highlights an important inadequacy of the present-day third-party audit process: the customer or auditee, is not given the chance to provide meaningful feedback before, during, or after an audit has taken place. The auditee is forced to accept the findings and correct as required. A dispute process is available (and mandatory) to the auditee; however, it is reactionary and is invoked only when the auditor and auditee cannot agree upon an audit finding. The dispute process does nothing to improve audit effectiveness or audit performance, nor does it allow the audited organization to realize substantial improvements because of the QMS audit.

Beckmerhagen et al. (2004) defined audit criteria as "simply the standards or procedures used in an audit as a benchmark" (p. 17) and presented several examples of criteria. In a third-party audit, criteria are generally the governing standards, that is, ISO 9000 and the associated audit rules. The authors suggested "providing objective evidence to all interested parties that the audit resulted in improvement of the quality management system" and "satisfying the client completely in terms of the achievement of stated objectives and the auditor's performance in general" (Beckmerhagen et al., 2004, p. 18). Both criteria are moderately intuitive, yet not present in today's third-party audit scheme.

Last, the authors presented the concept of audit risk and audit failure. Risk is described in terms of failure:

> In terms of audit effectiveness, "risk" therefore depends on a particular audit failure, and can be formalized as a function of severity (consequence), and probability of detection and occurrence of an audit failure. Individual audits can fail before (goal-related failures), during (process- and resource-related failures), and after (result-related failures) the audit. (Beckmerhagen et al., 2004, p. 18)

Risk and failure are important concepts overlooked by current third-party audit practices and schemes. The present author believes that research will indicate that these concepts are desirable and should be incorporated into the third-party audit process.

Value added audits. Dalgleish (2006), a self-described critic of ISO 9000, commented on value-added audits by stating, "Because registrars do such a bad job auditing, though, companies can focus on passing their audits quickly and easily without ever coming close to the intent of the standard" (p. 18). This statement was the result of a discussion regarding ISO standards and how the intent of the standard, in Dalgleish's opinion, is well intended; however, he believed that quality professionals and their respective organizations often do not focus on the intent of the standard but on meeting requirements only to satisfy the audit requirements. Dalgleish (2006) stated that this intent-minded approach distinguishes effective quality professionals from those who are less effective. As this relates to third-party audits, in Dalgleish's words,

> They mistakenly think that meeting the requirements in the standard the fastest and easiest way makes their business more efficient. They ask questions such as, "Specifically what will the auditor be checking and how can we quickly address that area so it passes?" (p. 18)

This approach to achievement of QMS compliance is all too common: prepare each manufacturing area, process, and documentation to merely satisfy the auditor's historical preference and interpretation of the standard. Most importantly, the argument presented by Dalgleish (2006) is a definitive need for a new approach to audits thereby adding value to the current process that promotes minimal effort from the organization. Furthermore, third-party audits encourage pursuit of misguided goals by preparing systems, employees, and documents to pass the audit. Third-party compliance audit terminology makes use of the term "nonconformance." The term alone suggests negativity. Dalgleish (2006), like others, suggested a focus on improvement opportunities that consequently promote organizational compliance to the standard, while adding value with a positive association.

Karapetrovic and Willborn (2002) acknowledged the importance of the audit process, yet recognized the necessity for improvement and emphasized, "Based on the fundamental principles of independence, objectivity and professionalism, the audit is an irreplaceable tool when confirmation of compliance with standards is sought" (p. 24). Although these authors supported the process, they found areas for improvement and asserted, "However, it commonly fails in enabling continuous improvement and spanning the differing aspects of business performance beyond conventional 'quality assurance'" (p. 24). The core of this article highlights and challenges a critical, yet debatable, aspect of the third-party audit: auditor objectivity and autonomy.

As ISO and industry-specific standards evolve, so too should the auditor and auditing practices. Karapetrovic and Willborn (2002) noted that quality audit effectiveness has come under scrutiny in recent years due to cases such as the Firestone tire recall that captured public interest and put third-party auditing at the forefront of the issue. In this case, the tire

manufacturer implied the quality systems registrar was responsible, since audits did not uncover the looming failure (Zuckerman, 2000). Regardless of the perceived intent of third-party audits, or one's opinion on which organization bears responsibility, challenging the value of quality audits and auditor effectiveness remains a constant. Some believe that third-party audits are simply to demonstrate compliance to a standard, while others think that verification of product quality is implied or inherent to the registration process. Karapetrovic and Willborn (2002) cited Arter's (2000) position that a third-party auditor does not examine or have access to data that could have prevented such a field failure. Just as audit intent is contested, so too can auditor independence be questioned. If an auditor could (or should) have access to such data, perhaps critical quality failures would be prevented, thus increasing the value of third-party audits. This is not an easily addressed issue, yet this is precisely what needs to be determined. Karapetrovic and Willborn (2002) suggested removal of auditor objectivity by allowing for self-audits conducted by the process owner, thereby creating a vested interest in the audit outcome since the audit goal is process improvement and not solely compliance. This antiquated thinking challenges existing audit philosophy because one would believe that an organization would seek improvement over mere compliance. Compliance has not led to improvement and perhaps promotes mediocrity while supporting a quality assurance bureaucracy within the organization.

Karapetrovic and Willborn (2000) believed both auditee and auditor add value to an audit in order to make a conclusion about a process and its compliance with a standard. However, the weakness of this process is one of the key principles of the audit process: third-party objectivity. Consequently, the auditor renders findings based on observation and information provided by the auditee. This external assessment often results in conflict; the

auditee feels forced into a judgment from an auditor who, in many cases, is not as experienced with the process as the auditee. Thus the auditee lacks the motivation to fully embrace and address the perceived findings. Karapetrovic and Willborn presented an alternative method to conduct audits, yet exploited the experience of the process owner while adding value and reducing the necessity for extensive internal audits and product inspections. Describing or promoting a single audit alternative is not the intent of this current research; however, the method (self-audit) depicted by Karapetrovic and Willborn certainly has merit and demonstrates the need for change to a system coming under increased pressure to add value and demonstrate effectiveness.

Concluding remarks by Karapetrovic and Willborn (2002) are exceedingly supportive of this current research:

> In recent years, it has become apparent that organizations competing in any kind of market cannot rely solely on ISO 9000 standards to meet the increasing demands for continuous improvement and business excellence. Consequently, the traditional quality auditing methodology designed to test quality assurance systems against the standards falls well short of enabling performance improvement. While there is little doubt that a system audit is an excellent tool for independent, objective and systematic evaluation against the standard's minimum requirements, based on professional and statistically sound judgments, there is even less doubt that some changes are required. (p. 11)

Furthermore, the need for academic investigation into the audit process is evident as Karapetrovic and Willborn (2002) noted:

> Finally, further research in the area of quality auditing, aimed particularly at improvements in efficiency and effectiveness of the methodology, is particularly encouraged. Specifically to the self-audit concept, testing and verification in a business environment, as well as an empirical study of the application, are suggested. Research into the conversion from internal quality auditing to self-auditing in different industries would also be beneficial. Of particular interest would be an analysis of the usefulness and applicability of the concept in small to medium sized enterprises. (p. 11)

Self-audits: Alternatives to third-party audits. The intent of this current research is to describe and understand the current perceptions of third-party audit process; however, this researcher will also invite the subjects to offer suggestions for improvement regarding the current process. Several authors have posed alternate methods to the third-party audit; the discussion that follows presents alternative methods.

Douglas (2000) outlined a typical scenario that suggests ISO 9000 audits (i.e., third-party audits) are problematic and non-value added:

> In two days time, company XYZ, Ltd will receive a visit from its external auditor who will conduct one of their twice-yearly audits that will determine whether XYZ, Ltd will maintain its ISO 9000 status. The fire fighting exercise that is designed to ensure that the company keeps its certification is already in full swing. Paperwork is being checked and double checked for errors, missing signatures or miss filing; the stockroom is being tidied; labels are being attached to anything and everything; quality documentation is being updated; training records are being updated; calibration stickers and records are being updated and internal audit reports and

> minutes of meetings that never took place are being written and filed for reference. For the next two days, normal business activities at XYZ are being suspended. Does all this sound familiar? The above scenario is repeated in organisations throughout the world on an almost daily basis. Why? (p. 172)

As Douglas inquired, why would an organization undergo this "fire fighting" exercise? The answer is simple: Organizations are under pressure to maintain ISO status for reasons other than process improvement (Douglas, 2000). Additionally, the expectation to adhere to the ISO guidelines and retain certification until the next surveillance audit adds further stress to an already taxing process. This, in conjunction with a claim by Rice (1994), which suggested that audits often inaccurately reflect on an auditee's actual job performance, supports one of the fundamental problems associated with third-party audits; organizations and individuals, out of fear of failure, prepare for an audit by fixing, creating, or revising information that has potential to be reviewed during an audit. Although this practice is an organizational choice and may be an indicator of an underlying management problem, the third-party audit has very few opportunities to identify and address this type of problem. Because an audit is only a sample of a larger picture, it is understandable that an audit will not discover such problems. Douglas (2000) suggested these inherent problems within the third-party audit process can be avoided by using self-audits.

To demonstrate the benefits of self-audits, Douglas (2000) presented a case study of the Easy Ayrshire Council in Scotland that decided to benchmark against the European Foundation for Quality Management (EFQM) Model for Excellence as a continual improvement method. The EFQM Model for Excellence has nine elements (a) leadership; (b) strategy; (c) people; (d) partnerships and resources; (e) process, products, and services; (f)

customer results; (g) people results; (h) society results; and (i) key results. The Easy Ayrshire Council was organized into seven departments and 57 service units; over a 7-year period, each service unit would be evaluated annually by internally trained assessors against EFQM criteria. This self assessment realized multiple benefits over a third-party audit and registration scheme.

Douglas (2000) identified several benefits to this approach. A first benefit of self-assessment is the audit scheduling. Management can schedule the assessment around business needs and demands, thereby minimizing disruption to the operation. With a third-party audit, dates are not as flexible; therefore, an audit may be conducted during an inconvenient time for the operation, thus offering the potential for a major disruption to the business.

Secondly, compliance evidence is presented in a structured fashion by each unit's EFQM coordinator, who is also an assessor. It is this individual who works directly with the EFQM assessors during the annual assessment to present evidence of activities that apply to the criteria. This provides a greater opportunity for the organization to present all pertinent evidence to demonstrate the level of compliance. Additionally, the coordinator understands the criteria and required evidence, and therefore serves as a liaison between the EFQM assessors and the organization. Unlike the current third-party audit process, individuals who collect evidence for the EFQM assessor are the only people working with the assessor; thus others within the organization are not unexpectedly disrupted during their normal workday.

Third, since the coordinator is dedicated to gathering evidence for the assessment on an ongoing basis, the need to cram for an upcoming audit is not required. Furthermore, this

continual evidence gathering has helped to promote the importance of documentation of activities among the management staff.

The final benefit is the important distinction between third-party audit practices and the EFQM assessment. The EFQM model is a tool to identify problems and weaknesses in any given area. Thus, the assessment report serves as the future action plan for the organization. In the third-party process, nonconformances are not necessarily correlated to an operational weakness; therefore, the third-party audit report often serves as an acute snapshot of a particular process. The nonconformance is addressed; the audit report is archived and does not serve as an action plan of improvement for the organization (Douglas, 2000).

Douglas (2000) concluded the case study by asserting,

> East Ayrshire Council has adopted a system of what is, in effect, continuous evidence gathering for assessments that negates many of the operational and people problems associated with ISO 9000 audits. This unique and original way of conducting self-assessment offers an opportunity for other organisations to learn from, and possibly benchmark against, what has already proved to be a highly successful technique. (p. 176)

The important concept conveyed is that a better method may exist in lieu of the current ISO 9000 third-party audit and registration scheme. Other models, such as the Malcolm Baldrige National Quality Award, operate under a similar philosophy and have gained wide acceptance as a value-added process and improvement tool.

Karapetrovic and Willborn (2002) offered an audit model based on process owner empowerment, thereby removing the typical element of independence from the formal

quality audit. According to these authors, during a typical independent assessment, both the auditor and auditee must interact to ultimately complete a value-added audit. Within the audit interaction, each of the parties brings specific expertise. The auditor is generally proficient in quality systems, while the process owner possesses intimate knowledge of the process. An unintended consequence of this audit method (third-party or independent assessment) is a lack of motivation for the auditee to follow up on recommendations offered by the less process-knowledgeable independent auditor. In order to remove the outside perspective effectively, the auditee or process owner may be provided the authority to perform a self-audit, as depicted by Karapetrovic and Willborn (2002).

Although Karapetrovic and Willborn (2002) provided a detailed description of self-audit principles and methodology, exploring this in detail is not within the scope of this literature review. However, the philosophy and advantages supporting the self-audit are critical to understanding that a value-added audit can be conducted without the involvement of an independent auditor. A self-audit, according to Karapetrovic and Willborn (2002) is an audit executed by the process owner at the process site. Participation from other affected departments may be encouraged if deemed necessary by the process leader. The main objective of the self-audit differs from that of an independent (third-party) audit since the audit's focus is "to evaluate and improve performance, by continuously examining both the performance enablers and achieved results" (Karapetrovic & Willborn, 2002, p. 27). Specifically, the categories that are under review are process goals, resources requirements, and the process itself, including the intended output. Assessment focuses on the ability of these process to produce the intended results effectively (i.e., against predetermined performance standards) and efficiently (i.e., within expected burden rates). Without going

into vast detail, the self-audit as presented by Karapetrovic and Willborn offers a distinct advantage over the third-party audit. The self-audit places an emphasis on process performance and continual improvement; the third-party audit focuses on assessment to a generic standard such as ISO 9000 or ISO/TS 16949. Compliance audits focus solely on the QMS; in contrast, the self-audit focuses on the process. This presents and excellent alternative to the third-party audit process.

Literature Related to the Research Study Methods

Introduction: Grounded theory. Qualitative research is conducted when a problem must be investigated and a detailed understanding of a particular group, process, or issue is sought. Qualitative designs are also appropriate when a theory is not available and quantitative methods are not sufficient given the research problem (Creswell 2007). Therefore, to conduct research that culminated with an overall detailed explanation regarding the current state of third-party audits, this researcher used a grounded theory research design. Wells (1995) summarized the historical origin of grounded theory:

> Grounded theory was developed in the mid-1960s by two sociologists at the University of California, Barney Glaser and Anselm Strauss, while they were studying the interactions of hospital personnel with dying patients (Glaser & Strauss, 1965). The approach was articulated more completely in The Discovery of Grounded Theory (Glaser & Strauss, 1967); subsequently, it has been extended and refined by its originators (Glaser, 1978, 1992; Strauss, 1987; Strauss & Corbin, 1990) and their students (for example, Charmaz, 1983, 1990; Stern, 1994). (p. 33)

Creswell (2007) stated that the "intent of a grounded theory study is to move beyond description and to generate or discover a theory, an abstract analytical schema of a process

(or action or interaction, Strauss & Corbin, 1998)" (p. 63). Moreover, Creswell (2007) maintained, "Thus, grounded theory is a qualitative research design in which the inquirer generates a general explanation (a theory) of a process, action, or interaction shaped by the views of a large number of participants (Straus & Corbin, 1998)" (p. 63).

As Creswell maintained, grounded theory is a research design used when a researcher strives to offer an overall description of a process. This is precisely the intent of the present researcher.

Historically, grounded theory has two common methods. The first is the systematic approach popularized by Strauss and Corbin, while the alternative is a constructivist perspective offered by Charmaz (Creswell, 2007). The current researcher will focus on the systematic approach as defended by Strauss and Corbin. Strauss and Corbin (1998) defined this approach as "theory that was derived from data, systematically gathered and analyzed through the research process" (p. 12). Although in the current study, this researcher has beliefs and experiences regarding the audit process, a theory regarding this process is not predetermined. Fitting well with Strauss and Corbin's approach, a researcher using grounded theory typically does not have a defined theory; the researcher seeks to collect data, and from these data, a theory will surface (Strauss & Corbin, 1998). To support grounded theory as a suitable design for this research, Strauss and Corbin (1998) offered the following:

> Theory derived from data is more likely to resemble "reality" than is theory derived by putting together a series of concepts based on experience or solely through speculation (how one thinks things ought to work). Grounded theories, because they are drawn from data, are likely to offer insight, enhance understanding, and provide a meaningful guide to action. (p. 12)

The use of grounded theory is appropriate when a theory regarding the area of study is nonexistent or incomplete and literature has not addressed the research problem. Moreover, a real need may exist to explain how a process affects individuals or why a process is structured as such. Developing a theory grounded from data will provide the theoretical foundation (Creswell, 2007). Characteristics conducive to a grounded theory include (a) an emphasis on developing a theory obtained from field data; (b) a problem requiring input of perceptions from individuals involved with the problem; (c) a collection of data via the interview process; (d) analysis of data by means of coding techniques; and (e) offering a theory not only in the form of prose, but representing the theory through the use of illustrations (Creswell, 2007).

Although grounded theory was developed as a research method to explain social interactions, several other disciplines have adopted the method. Of particular interest is the field of operations management that encompasses activities such as manufacturing, quality assurance, and management audits. With a multitude of applications within this field, the use of grounded theory is appropriate for conducting this research.

Grounded theory is a research method implemented to ultimately build a theory or construct an explanation after careful, systemic observation of a practice, process, or event. Binder and Edwards (2009) addressed the question of whether or not operations research should make use of grounded theory research through a literature review of articles that focus on applying grounded theory in operations management (OM) research. Furthermore, Binder and Edwards offered an example for researchers to reference when using grounded theory with operations management.

Binder and Edwards (2009) supported the need for use of grounded theory in operations management research by asserting,

> Hayes (2000) has already acknowledged that today's complex and dynamic world calls for less hypothesis testing and more systematic observation to help managers deal with their actual problems. This is especially true for OM as it is an applied discipline setting out to answer concrete problems that emerge within both industry and services (Filippini, 1997). Hence, OM would benefit from theories that help to explain current phenomena and the relationships between their relevant building blocks. This calls for the application of qualitative research methods to develop models and theories rather than to test them (Coughlan & Coghlan, 2002). (p. 233)

Binder and Edwards (2009) continued the discussion by identifying three deficiencies regarding theory building in operations management (OM) research. Although an in-depth analysis of these deficiencies in not within the scope of this dissertation, they are worthy of mention since each suggests important use of grounded theory in OM research. First, it is noted by Craighead and Meredith (2008) and Voss, Tsikriktsis, and Fohlich (2002) that OM research primarily uses quantitative methods although a need for more qualitative methods is apparent. Second, Cousins, Lawson, and Squire (2006) deemed current OM research as absent of experiential accuracy when qualitative methods are used in applied research. Last, to promote OM research as a valid and recognized area of study, academic papers addressing research methods in OM are clearly lacking in the foremost, accepted OM journals, yet decidedly needed.

Concerning strict use of the grounded theory method, Binder and Edwards (2009) considered the methods predominantly useful when "research and theory are at their early,

formative stage and not enough is known on the phenomenon to state hypotheses prior to the investigation" (p. 238). Based on the present author's survey of literature regarding the value and necessity of third-party audits, it is clear that the study of third-party audits is in the formative stage. As cited in the literature review, very few and arguably no scholarly papers specifically address the topic of the value and necessity of third-party audits. In the article "The Evolution of Production Systems and Conceptual Frameworks," Fleury and Fleury (2007) chose to use grounded theory based on the rationale that a current theory did not exist; therefore, according to Binder & Edwards (2009), development of a theory was the main focus. Similar to the current researcher's problem, academic critique is sparse and a stated theory regarding third-party audits is non-existent.

Summary: Literature Review

As stated in the early portion of this literature review, academic researchers have not addressed the perception of third-party audits, nor has the topic been given any notable attention by trade, technical, or non-peer reviewed publications. Thus, the literature review represents material that relates to the topic of third-party audits; however, it is indirectly related to the research focus. The literature presented is, in this researcher's perspective, adequate to demonstrate that the need for conducting the research and the necessity to contribute to the lack of scholarly knowledge is warranted. A review of grounded theory was offered to substantiate the use of grounded theory as the appropriate method to address the research problem.

Chapter 3: Methodology

Introduction

This chapter serves to outline the methods used to gather, analyze, and draw inferences about the chosen population. The current researcher sought to understand the current attitudes, beliefs, and recommendations regarding the existing third-party audit process. These aspects include (a) the perceived value or lack thereof associated with the third-party audit process; (b) the third-party audit process effectiveness to offer improvement opportunities for the organization; (c) the recommended changes to the third-party audit process; and (d) the necessity for continuation of the third-party audit process within the automotive manufacturing industry.

Research Design

A grounded theory approach was used to formulate a theory regarding the present state of, and future changes required for, third-party audits. The researcher conducted interviews with knowledgeable and experienced individuals to assess their beliefs on the current state of auditing. Leedy and Ormrod (2005) stated,

> Of all the research designs we describe in this book, a grounded theory study is the one *least* likely to begin from a particular theoretical framework. On the contrary, the major purpose of a grounded theory approach is to *begin with the data and use them to develop a theory*. More specifically, a **grounded theory study** uses a prescribed set of procedures for analyzing the data and constructing a theoretical model from them. The term *grounded* refers to the idea that the theory that emerges from the study is derived from and "grounded" in data that have been collected in the field rather than taken from the research literature. (p. 140)

The current researcher selected grounded theory because the interviewees have all experienced the third-party audit process and thus the theory is based on participants' experiences and not on assumptions, subjective critique, or opinions. Although each question has a particular focus, the six questions all serve to increase understanding of one fundamental concept, which is whether the third-party audit process, from a macro perspective, is effective and value added. Each of the six questions, along with the supporting questions (spontaneously posed by the researcher), formed the multiple iterations that ultimately led to development of the final model. Use of this iterative approach allowed for the structured coding of data that is characteristic of a grounded theory study.

Other qualitative research methodologies—such as case study, ethnography, narrative, and phenomenology—were considered by the researcher but eliminated in lieu of grounded theory. A case study was not appropriate since the intent of the research was to determine the perceptions of multiple individuals' experience with the third-party audit process. The case study would have only considered one individual at one particular organization. Ethnography was ruled out due to its intent to understand a cultural group over a prolonged period of time. Participants in the third-party audit process do not reflect a cultural group, nor was this research intended to assess the perceptions of the third-party audit over a prolonged period of time. Narrative offers a reflection on one's life and experiences and does not offer an appropriate methodology to answer the current research questions.

Phenomenology offered several positive characteristics; however, two distinct items eliminated this methodology. First, the intent of phenomenology is to study or capture the human experience relating to a specific phenomenon as viewed by various subjects. While

this researcher sought to understand the experiences of individuals regarding the third-party audit process, it is this researcher's belief that the third-party audit process does not constitute a phenomena; it is a management process used to assess compliance to a set of published standards. According to Dictionary.com (2012), *phenomenon* is defined as "anything that can be perceived as an occurrence or fact by the senses." Phenomenon is not congruent with the definition of a third-party audit. Second, the intent of the research was to understand individuals' perceptions and construct an overall model. According to Creswell (2007), phenomenology's basic intent is "to reduce individual experiences with a phenomenon to a description of the universal essence" (p. 58). Although this seems to fit the basic intent of the research, the disconnect lies with considering the audit process as a phenomenon. Additionally, grounded theory is used when a theory or model is lacking, and as stated by Creswell (2007), "the intent of a grounded theory is to move beyond description and to generate or discover a theory, an abstract analytical schema of a process" (p. 62). The intent to generate a model regarding the third-party audit process is within the methodology characteristic of grounded theory research.

Selection of Subjects

Subjects for this research came from U.S. manufacturing and organizations within the automotive component manufacturing community that are currently registered to ISO 9001:2008 or TS16949:2009. Additionally, each individual chosen was currently serving as the management representative or has previously served as a management representative for a quality management system. These participants have direct experience with third-party audits. In 2010, according to the International Organization for Standardization, the number of ISO9001:2008 registered organizations in the U.S. is 25,101, and the number of

ISO/TS16949:2009 registered organizations in the U.S. is 3,721 (ISO, 2010). Since one management representative is required for each organization, the total possible number is 28,822. The geographic regions for the subjects are primarily Michigan and Ohio, with some representation in the South Central U.S. The researcher interviewed 25 subjects. Creswell (2007) suggested a sample size of 20–60 for grounded theory.

The researcher recruited subjects through professional, social media networking websites: Elsmar Cove (www.elsmar.com) and Linkedin (www.linkedin.com). The researcher recruited additional subjects through customary professional networking.

In this study, interviews were used to acquire qualitative data. Knowledgeable individuals who have direct experience with the third-party audit process were asked a series of questions related to the third-party audit process. A criterion, purposive sampling strategy, was the method used to select interviewees for the research. Purposive sampling has been chosen because, in the words of Leedy and Ormrod (2005),

> In purposive sampling, people or other units are chosen, as the name implies, for a particular purpose. For instance, we might choose people who we have decided are "typical" of a group or those who represent diverse perspectives on an issue. (p. 206)

Furthermore, Creswell (2007) supported criterion sampling and stated, "criterion sampling works well when all individuals have experienced the phenomenon" (p. 128). In this study, all participants (a) worked within the automotive component manufacture industry; (b) were employed by an organization that is either ISO 9001:2008- or TS 16949:2009-registered for a minimum of one full audit cycle; and (c) were either a current management representative or had previously served as a management representative for third-party audits. The management representative is the individual within the organization who is responsible for

the quality system and normally works directly with the third-party auditor during each and every audit conducted. As outlined in ISO/TS16949:2009,

> Top management shall appoint a member of the organization's management who, irrespective of other responsibilities, shall have responsibility and authority that includes:
>
> ensuring that processes needed for the quality management system are established, implemented and maintained, reporting to top management on the performance of the quality management system and nay need for improvement, and ensuring the promotion of awareness of customer requirements throughout the organization.
>
> Note: The responsibility of a management representative can include liaison with external parties on matters relating to the quality management system. (p. 9)

Data Collection

Interviews are a typical method to gather data during grounded theory research. In order to conduct an in-depth interview, this researcher used a semi-structured interview protocol. Consequently, an interview schedule with a semi-structured format was established to allow the researcher to ask spontaneous questions based upon participant response, yet focus on the same central theme for all interviewees. The semi-structured format consisted of basic open-ended questions centered on the research questions. The interview schedule in Appendix A outlines the initial questions presented to the interviewee. Follow-up questions for each main question were led by the researcher.

In order to gain in-depth information, the researcher used an iterative interview process consisting of (a) preliminary review and feedback by the subject regarding each research question; (b) verbal interview to explore the preliminary response to each research

questions proved by the subject; and (c) further questioning of the subject by the researcher to gain thorough answers from each subject. Since the third-party audit process is currently stable and not undergoing changes, data saturation occurred within the 25 subjects interviewed.

Human Subjects

As required by Eastern Michigan University, the researcher developed a consent agreement using the guidelines outlined by the Office of Research and Development. The Human Subjects committee approved the consent agreement on June 25, 2012.

Data Analysis Strategy

Qualitative data analysis included use of a modified version of the widely accepted technique of coding offered by Strauss and Corbin (1998) and used by several authors including Binder and Edwards (2009). Coding is "The analytic process through which data are fractured, conceptualized, and integrated to form theory" (Strauss & Corbin, 1998, p. 3). Lockyer (2004) described coding as, "A systematic way in which to condense extensive data sets into smaller analyzable units through the creation of categories and concepts derived from the data" (p. 137). Strauss and Corbin (1998) developed the coding process described in the subsequent paragraphs.

Examination and segregation of data into central categories took place in the initial stage of data (transcripts from the interview process) analysis. Identification of two central themes emerged: statements that supported the third-party audit and statements that challenged the third-party audit. After populating the categories with the subject's statements, the researcher identified specific attributes within the main categories and further

refined and narrowed the statements. At the completion of stage 1, two central themes relating to each research question were established.

During the second stage of data analysis, each research question was broken down into two categories (a) positive audit perspective relative to the specific research question, and (b) negative audit perspective relative to the specific research question. These subcategories supported the central theme. Figure 1 depicts this technique. It is necessary to mention that the open coding and axial coding process were not necessarily hierarchal; it was an iterative process, and each stage was revisited at several times during the analysis. According to Leedy and Ormrod (2005), "The researcher moves back and forth among data collection, open coding, and axial coding, continually refining the categories and their interconnections as additional data are collected" (p. 141).

In stage 3, selective coding, the researcher formed logical categories derived from stage 2, coding for the development of a final model. In this stage, the data were transformed into an explanation of the audit process perceptions. The central theme was drawn from the data outlined in axial and open coding. The theme was constructed from the data (subjects' statements) since a clear logical link had been established during coding. In effect, these themes became the script that described the third-party audit process relative to the research questions.

In stage 4, the researcher summarized the results from selective coding and formed a cohesive, overall conclusion and response to each research question. Using the six summaries from each research question, the researcher offered an overall theory or conclusion. The conclusion is solely a result of the data. Figure 1 outlines an example of the data analysis strategy.

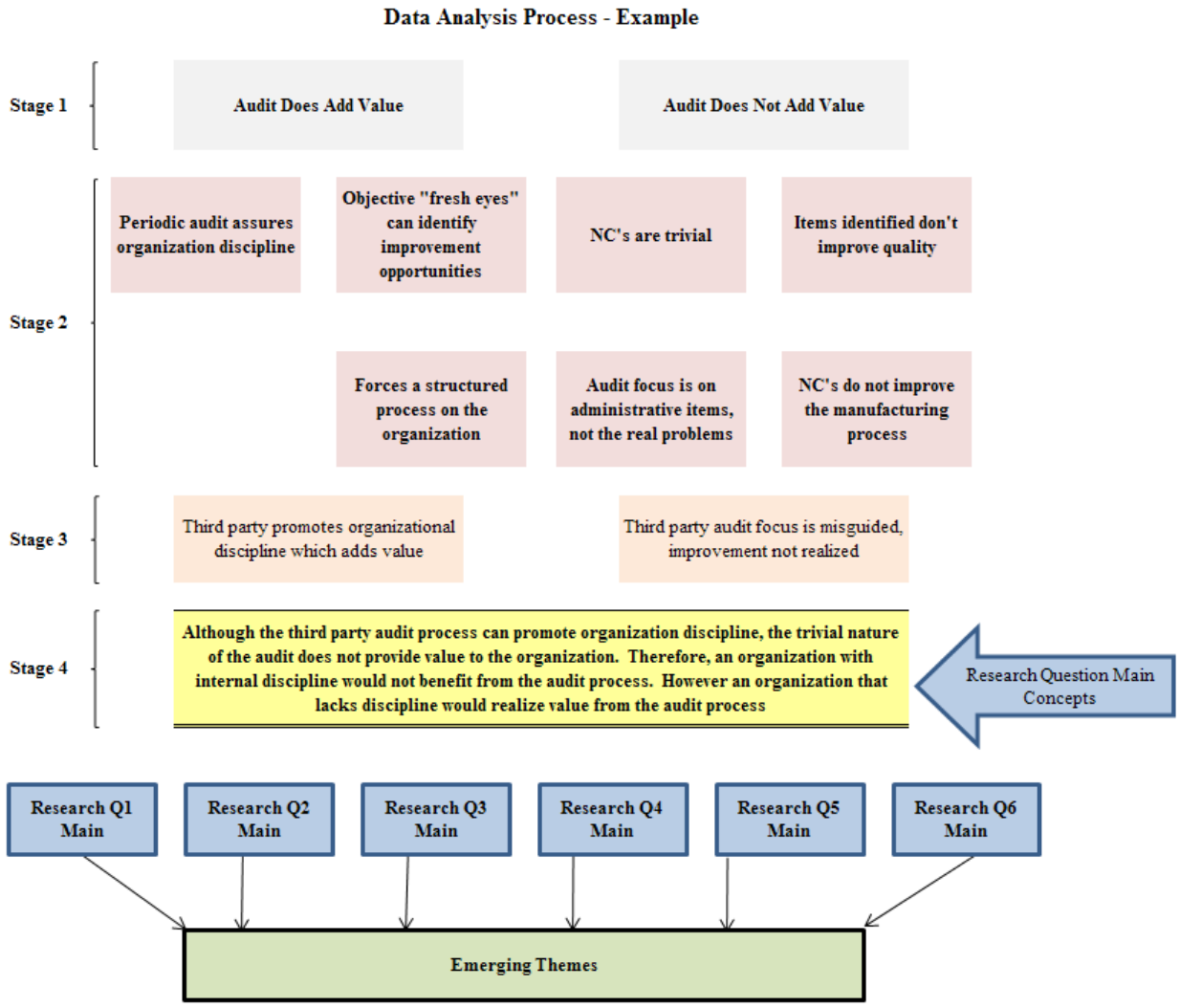

Figure 3. Data analysis example.

As part of the data collection and analysis strategy, subjects were asked to offer suggestions regarding improvement of the third-party audit process. Subjects' statements regarding third-party audit improvement ideas have been coded and documented in the same fashion as the subjects' responses to the questions. Examples of these questions can be found in Appendix B, the interview schedule. It is from these suggestions and the researcher's experience that a final model, *The Kluse Utopian Third-Party Audit Model,* was developed.

Validation Strategy

As a method to validate the research findings, the researcher incorporated into this research methodology the technique offered by Creswell (2009). Creswell outlined eight primary methods often used to validate qualitative research:

> A procedural perspective that I recommend for research proposal is to identify and discuss one or more strategies available to check the accuracy of the findings. The researcher actively incorporates validly strategies into their proposal. I recommend the use of multiple strategies, and these should enhance the researcher's ability to assess the accuracy of findings as well as convince readers of that accuracy. (p. 191)

The validation strategy was to use four of the eight validation strategies as outlined by Creswell (2009). These strategies are triangulation, clarification of researcher bias, presentation of negative or discrepant information, and member checking. Triangulation is investigating data from various sources, while clarification of researcher bias involves composing a personal narrative illustrating the researcher's bias. Furthermore, presentation of negative information is offering opposing arguments or perceptions that go against the main theme or theory, and member checking involves taking back the final themes (from interviews) to the subjects in an attempt to determine if the themes, as described by the current researcher, are congruent with the subjects' beliefs or viewpoints (Creswell, 2009).

Triangulation. The researcher incorporated triangulation by selecting participants with varying experience and views regarding the third-party audit process. Each individual offered a unique perspective; it is from these various sources the theory has emerged. Creswell (2009) stated, "If themes are established based on converging several sources of

data or perspectives from participants, then this process can be claimed as adding validity to the study" (p. 191).

Clarification of researcher bias. Research findings in qualitative studies can be guided by the researcher's background; thus, a brief narrative offering a reflective look at the researcher's bias is considered as a key constituent of qualitative research (Creswell 2009). The following is a brief narrative clarifying the researcher's bias.

This researcher has been directly involved with third-party audits for approximately 15 years. In this time, the researcher has participated in third-party quality audits to assess compliance with ISO 9001:1994, ISO 9002:1994, QS 9000, ISO 9001:2000, ISO 9001:2008,. ISO/TS 16949, ISO 14000:1996, and ISO 14000:2004. For all of these audits, the researcher served as the management representative and was responsible for the organization's quality management system. After experiencing the initial third-party audit in 1997, this researcher believed the system was beneficial and necessary. However, as this current researcher's audit experience expanded, each and every audit seemed to be an exercise that only identified trivial findings while exhausting an abundance of organizational resources.

In 2008 and 2009, this researcher, like many others, experienced and observed the effect of the economic collapse on the U.S. automotive industry. Fortunately, this researcher retained employment, but it was at this time that the real value of the third-party audit was questioned. During this period, the general manager of the organization challenged every senior manager to identify each and every cost savings opportunity within the facility. Consequently, the cost and value of audits became a topic of debate. It was decided that the third-party audit process was costly and not necessary; therefore, canceling or delaying the audit until further notice was the directive from senior management.

As a quality manager and management representative, this researcher's first consideration was to demonstrate the benefits and justify the cost of the audit, and thus substantiate the need for the audit. This researcher was unable to justify the cost. Additionally, it was not possible to show that even the basic audit fees (approximately $3,000 USD) are justified by the audit process. Audits were successfully delayed (with agreement from the registrar and the International Automotive Oversight Board) until the economy began to recover. This exercise and the revelation that audits have no payback prompted immense curiosity from this researcher. Since reinstatement of the third-party audits at the researcher's facility in October 2009, six audits have been completed; one audit included a full systems registration audit. During these audits, the researcher transcribed meticulous notes. In each and every audit, rarely was the audit process value added nor did the audit process and findings justify the cost of the audit.

After casual conversation with peers, the researcher uncovered similar views, yet others supported the process, but with certain disclaimers or clarifications. This disparity provided the inspiration for this research. Although some may think this constitutes bias, it simply does not. The participants chosen possessed varying levels of experience and varying perspectives regarding the process. Furthermore, the researcher sought to understand perceptions of the process; regardless of the final model, the OEM community will still require the process. Therefore, any bias in the study would benefit neither the researcher nor the participants. Moreover, the research could inspire further research while adding to the academic literature. Adding to the literature base and answering the research questions has served as a positive initiative to improve a process required by all U.S. OEM automotive manufacturers.

Presentation of negative or discrepant information. An additional technique for addressing bias within this study is the presentation of negative or discrepant information. In this study, emerging themes are offered; however, the theme is not absolute nor without opposing viewpoints. Therefore, the researcher developed conclusions regarding the third-party audit process by considering and offering these opposing viewpoints in the final model. The final model was neither an absolute criticism of the process nor was the final model in full support of the process.

Member checking. During the data collection process, data were documented using interview notes and recordings. After the interview commenced, the researcher reviewed the interview notes and/or the interview recordings and summarized the highlights of the interview. The summary of the interview was presented to select subjects for review. In all cases, the subjects agreed that the summary presented by the researcher accurately portrayed the subject's thoughts regarding the third-party audit process. The researcher chose a sample of five subjects to conduct member checking. If any of the subjects did not agree with the researcher's summary, modifications to the data would have been made based on the subjects' post-interview feedback. However, this did not occur with any of the five subjects selected for member checking.

Reflexivity and Credibility

In this study, recorded (for those who provided permission) interviews were the method of data collection; consequently, because of the data acquisition technique, the researcher became the central instrument in the data collection process. According to Watt (2007), as a novice qualitative researcher, "Reflexivity is thus considered essential, potentially facilitating understanding of both the phenomenon under study and the research

process itself" (p. 82). As a method to substantiate credibility, this researcher offers reflection regarding the individual purpose for selecting this topic of study, the practical applications for this research, and the primary research motives to conduct such a study. In the paragraph below, the researcher offers additional reflection on participants' concerns while conducting the interviews.

Individual purpose, motives, and practical application. Motivation for conducting this research surfaced from advice by a professor in this researcher's early doctoral studies. Dr. Denise Pilato stated that a key element to being successful in research and doctoral studies is to "find your passion." This statement has always been in this researcher's mind. As a result, 15 years of experience with the third-party audit process within the automotive industry was the principal inspiration for this study. During these 15 years, major automotive components suppliers subject to third-party audits have employed this researcher. At each employer, this researcher's primary role was quality assurance while serving as the management representative for such audits. While each and every audit was unique, at the conclusion of each audit, this researcher continually questioned the value and necessity of the process. Although this researcher's view was not unique, many others within the quality community (within and outside automotive) held different perspectives and spent significant time preparing and promoting these audits as a necessary quality assurance activity.

After contemplating research into this topic and conducting a literature review, the researcher discovered that very few individuals have investigated the perceptions of the quality professional regarding the third-party audit process. Additionally, it was apparent that a void existed between the perceived value of the third-party audit and the perceptions of individuals experience with these audits. The majority of the literature surrounding audits

focus on improvement of effectiveness, methods of conducting audits, development of audit programs, or the benefits of audits. It was very difficult to locate any study that offers a critique of the process or demonstrates tangible benefits of the third-party audit process.

An exception is the work of Sayle (1995), a noted critic of the audit process. Through several keynote addresses, Sayle has strongly criticized the third-party audit process, yet often, at the conclusion of the address, received a sincere round of applause and even a standing ovation. It was interesting that the same community who promoted these audits also agreed in principal with Sayle's (1995) harsh criticism. This is quite the paradox. Hence, this researcher's desire to investigate and document the beliefs of professionals affected by this process became the crux for this current research. It seemed peculiar that such a study did not exist; however, this researcher contemplated the question of why would auditors, consultants, and quality managers who realize a professional livelihood from this process look to find fault? Conversely, why would those who support and prosper from these audits not want to document and prove the value? Driven by vast experiences with the process and the differing views among the professional community, this research commenced. Through the review of literature and speaking with peers, it was determined that the third-party audit process has become a topic of debate. Questioning audit value and necessity has increased. This study provides the foundation and direction for further research into this topic.

Participant concerns. At the onset of data collection, this researcher realized three issues with participants during data collection. The pilot study described in the following paragraph assisted with alleviating some of the concerns. Of primary concern was potential bias introduced by the researcher during the interview. Throughout each interview, the researcher made a conscious effort to not lead the subject toward a particular answer or

viewpoint. In order to gain further insight into a participant's belief, the follow-up questioning by the researcher only included inquires such as "please elaborate," "please provide further detail," or "please offer an example." By following this method of questioning, the researcher was able to probe for detail yet minimize bias from personal audit experiences. Presentation of differing views in the final analysis substantiates this process. Consequently, the experiences of the researcher did not influence the conclusions.

Second, some interviewees had to be encouraged to speak freely about the audit process. It is this researcher's belief that a couple subjects were hesitant to offer negative criticism about a process that may be a significant part of their job description. By reminding these subjects of the confidential nature of the study and a review of the informed consent, subjects ultimately offered forthright perceptions.

Third, a few subjects seemed to answer the question as if the researcher was looking for a specific answer or response. As mentioned above, this was alleviated by using generic follow-up questions to the specific questions. The researcher often stated, "There is no right or wrong answer to this question; please elaborate and if possible provide examples to support your experience." This researcher believes some subjects assumed the researcher is an advocate of third-party audits since the researcher is a quality assurance professional.

Pilot Study

The researcher conducted a pilot interview as a method to hone the interview skills of the researcher and to evaluate reliability of the data collected. The pilot interview consisted of the researcher asking the subject questions in the order presented in Appendix B and asking the appropriate follow-up questions. The resulting data fulfilled the intent of the research questions; however, both the interviewee and researcher identified improvements to

the process. It was determined by providing the interviewee with an advanced copy of the questions it allowed for improved questioning, leading to further questioning during the interview. The preliminary answers formed the first iteration of data collection while the interview itself constituted the second and subsequent iterations of questioning. The researcher determined that it was necessary to remind the subjects that the researcher was not looking for any particular answer; the subjects needed to offer answers based on their own experiences with the audit process. After completing and evaluating the pilot interview, the data collection of all subjects commenced.

Research Timeline

Figure 4 identifies the milestones and timing required complete the research.

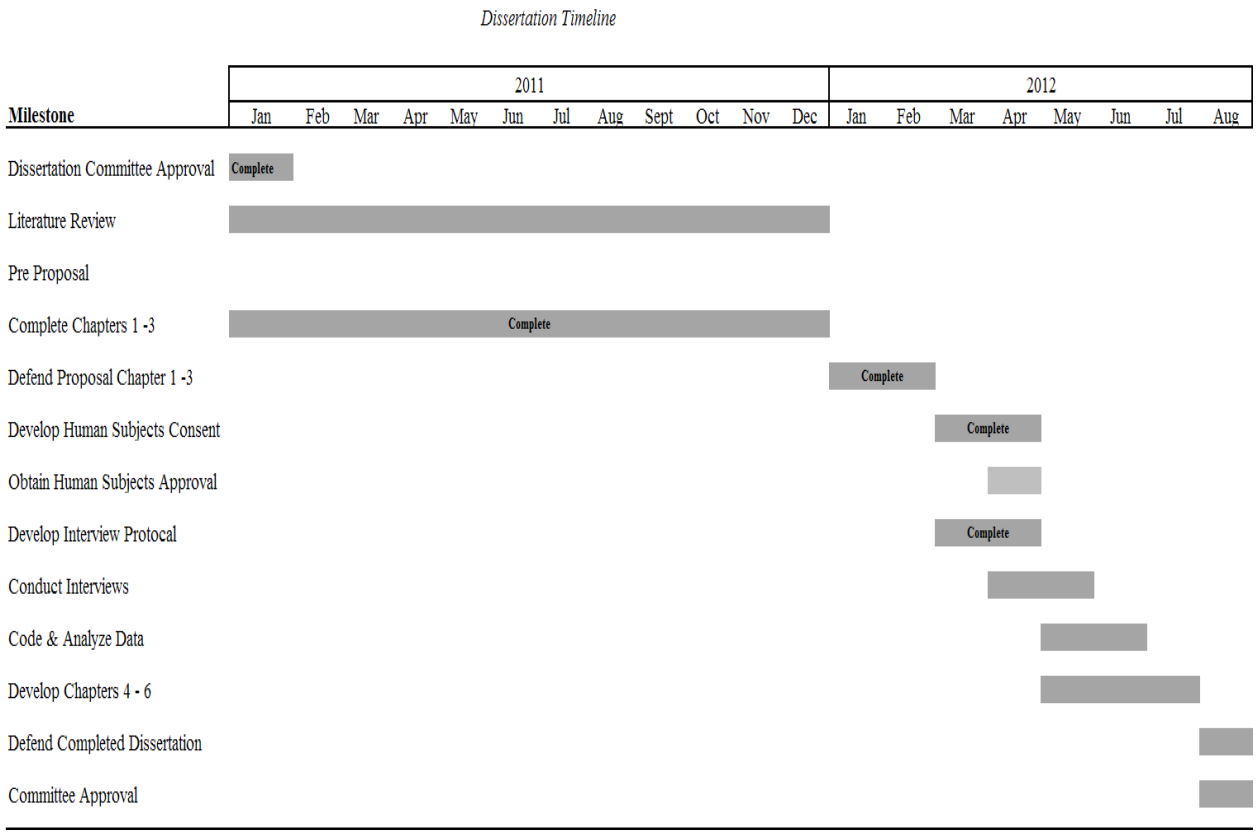

Figure 4. Research timeline.

Summary

This chapter served to present the methodology used by this researcher. Chapter 3 included the research design, population and sample, data collection procedures, sample size, validity, reflectivity, and the strategy used for data analysis. The researcher offered discussion of validity and reflectivity to authenticate the quality of the study.

Chapter 4: Data Presentation and Analysis

Introduction

The intent of this study was to understand the perceptions of individuals experienced with the third-party audit process. Chapter 4 includes presentation and analysis of the coded data listed in Appendixes C and D. The results from each of the 25 subjects interviewed are presented for each research question. It is from this analysis that emerging themes are identified. Table 1 shows background information for the 25 subjects interviewed.

Table 1

Subject Characteristics

			Years Experience in Quality				Employees at Facility			
Subject	Subject Title	Number of Audit Cycles Completed	1 - 3	3 - 5	5 - 10	15+	0 -100	101 - 250	251 - 750	750+
1	Quality Manager	3				x			x	
2	Business Owner	3				x	x			
3	Quality Manager	3				x			x	
4	Quality Manager	3				x			x	
5	Quality Director	3				x			x	
6	Quality Engineer	2			x		x			
7	Supplier Quality Manager	3			x			x		
8	Quality Manager	2				x		x		
9	Quality Manager	3			x		x			
10	Operations Manager	1		x			x			
11	Quality & CI Improvement Manager	3				x				x
12	Quality Manager	3			x			x		
13	Quality Manager	3			x		x			
14	Quality Assurance Manager	3		x						x
15	Quality Manager	3			x		x			
16	Quality Manager	2		x				x		
17	Quality Manager	3				x			x	
18	Owner/Partner	3				x	x			
19	Quality Manager	1	x					x		
20	Quality Manager	3			x			x		
21	Quality Systems Manager	3				x	x			
22	Quality Manager	3			x			x		
23	Quality Manager	2			x			x		
24	Quality Director	3				x			x	
25	Quality Manager	3			x			x		

Analysis of Data: Subject Statements

Results: Research Question 1

The first research question was, "Do management representatives perceive the third-party audit process as beneficial and thus deem the audit process as value added?" As perceived by some, audits do offer value to the auditee. The core of the third-party audit process is the objective view brought by the auditor. By virtue of this relationship, the outside auditor is certain to offer differing views when observing processes. Subjects believed that when an outside auditor reviews and evaluates customer performance and assesses whether or not customer-specific requirements are fulfilled, the auditee and customer are provided value. According to one subject, "The auditor's objective perspective often does make me think differently about how we are doing things and this can lead to changes for the good."

A third-party audit generally follows a specific format. The ISO/TS standard and audit process disseminates various elements of the QMS into manageable processes. Subjects think that this approach promotes standardization since the organization must identify each process owner, effectiveness measures, inputs/outputs, and process monitoring requirements. Breaking down each process and assessing performance of each process inherently adds value to the organization. The standard requires documentation of specific procedures and creation of specific records. This does add structure and value. Furthermore, value is realized when the auditor finds a process deficient and documents the issue as an audit finding, which, in turn, serves a good method to catch the attention of management. One subject stated, "if a finding goes against a specific process, it will get my management's attention and sometimes that is needed."

Conversely, a significant number of subjects offered reasons to support the lack of value offered by third-party audits. A consistent theme mentioned by many of the subjects centered on the maturity of the organization and the robustness of the QMS. Subjects believed organizations that have a strong commitment from management to quality assurance generally have a robust QMS; therefore, a third-party audit to a set of generic requirements offers no value. As one subject claimed, "The ISO/TS standard is fine and defines the necessary elements of a robust QMS, but to our organization, these are normal practices, we don't need a standard or audit to keep us in line." Moreover, most subjects interviewed had been through at least two full certification cycles. After the completion of the initial cycle (3 years), all subjects thought that the process was clearly redundant and offered diminishing value.

Many subjects considered the value offered by the audit as dependent upon the size of the organization and depth of organizational resources. Small companies, in which individuals often handle multiple assignments, are more likely to benefit from the audit process. These small facilities may not dedicate resources to developing and improving the QMS; therefore, the experienced auditor could offer value by finding and documenting areas for improvement. Additionally, subjects think that the total cost to initially become ISO/TS-registered was not attractive to the small organization since implementation cost offers no tangible payback. A few subjects believed the audit process does add value for those small organizations that choose to spend the money and pursue registration. A few subjects commented that small organizations have gained business and realized growth by virtue of obtaining ISO/TS-registered. A management representative and business owner stated,

"Although I was somewhat forced into pursuing registration, I have gained business over others that had not yet become certified."

An additional theme offered by subjects focused on the audit findings. Many subjects believed the audit findings were trivial and only pointed out insignificant discrepancies that would not improve the process nor cause discrepant product to be manufactured. Subjects recognized that all processes exhibit areas for improvement, but most think that the third-party audit findings do not offer observations that would add value. Although deemed trivial, audit findings do highlight legitimate areas that are non-compliant with the ISO/TS16949 standard. Nevertheless, subjects did not consider that these findings to culminate in value added actions that strengthen the product, process, or QMS. Subjects believed the findings were isolated incidences and rarely identified systemic failure; audit findings pointed out areas that did not comply with a minor clause in the standard.

A final topic presented by the subjects is the amount of resources needed to support an audit. Prior to an audit, most subjects reported that their respective organization goes through audit preparation. This preparation consists of activities such as double-checking paperwork for errors, reviewing records to assure all blanks are completed, making sure labels are intact, looking for uncontrolled documents on the production floor, assuring training records are current, making sure corrective actions are not past due, assuring all gauges have calibration stickers, and ensuring that meeting minutes exist for items such as management review or review of nonconforming material. It is this preparation that subjects indicated is a resource drain and is an expense with no payback. Additionally, as noted by most subjects, during the course of the audit, many managers, engineers, quality personnel, and team members are distracted from current duties to answer questions or gather evidence

for the audit. These activities are viewed as intangible costs that offer no value. One subject presented a particularly good comment regarding the value added concept of the audit. The subject stated that "An accepted definition of a value added activity is: a value added activity is one that the customer is willing to pay for such as validation testing or product assembly." The subject continued to state that "As a quality professional, I never encountered, in over 20 years, an OEM that would approve or willingly pay for a third-party audit."

In summary, most subjects think that the audit offered minimal value. Most subjects did express that the main audit focus, which is assessing compliance to the ISO/TS standard, is generally fulfilled. The exception is the organization that lacks discipline, has a weak QMS, and needs the structure offered by the ISO/TS standard and audit process. Subjects believe that initially the compliance aspect of audits would benefit these organizations. With that said, subjects stated that over time, conducting an audit on the same organization against the same guidelines offers little value, particularly after an organization has undergone multiple three-year audit cycles. Any value realized is intangible; no single subject interviewed presented any example in which the audit cost could be justified by the audit findings or any other audit activity. When asked how the audit process might be improved, most indicated that the process intent is solely compliance; therefore, adding tangible value could only occur from internal or intercompany audits.

Results: Research Question 2

The second research question was, "Do management representatives believe the third-party audit process acts as a change agent or impels continual improvement within the organization?" Similar to research question 1, subjects offered conflicting views.

Predominantly, most subjects failed to report that tangible continual improvement opportunities emerged from a third-party audit.

In support of the audit as a continual improvement catalyst, subjects identified specific areas beneficial to the organization. Subjects believed that organizations having a strong management commitment would gain continual improvement opportunities from the audit. As described by a subject who is an experienced quality manager, the rationale for this belief originates from the method by which opportunities for improvement are tracked by the auditee:

> Throughout the course of an audit, the auditor is constantly asking questions, observing, offering feedback and gathering evidence to demonstrate compliance. While this process is taking place we are recording notes about each process. In the course of note taking, ideas or opportunities for improvement may exist; the auditor may not necessarily recognize these areas, however, when recorded, tracked and addressed after the audit has terminated, an organization may have actions to initiate improvement.

Another subject claimed, "It's all about management's commitment to the audit process, but most senior managers don't believe in the audit as a tool or process that adds value."

Similar to the concept arising from research question 1 (audit value), subjects agreed that an organization possessing a weak or immature QMS could benefit the most from a third-party audit. Because the audit is primarily compliance-focused, findings for the fully-developed QMS generally offer information that the organization may already be aware of, or to understand why the deficiency exists. Findings from the audit are rarely surprises for an established QMS. Conversely, as noted by a majority of subjects, an audit of a weak

QMS can identify areas where basic quality systems are lacking, need improvement, or may not functioning as intended. The same type of findings that offer minimal continual improvement opportunities for the established QMS can become meaningful for the undeveloped QMS. A series of audits under this scenario adds opportunities for improvement; however, with the completion of each audit and audit cycle, subjects think that these opportunities diminish. In the view of one subject, "Our organization is on the third audit cycle, each audit is the same and nothing changes, so we can always prepare for the items the auditor will review, it's simple and predictable."

Subjects believe the experience of the auditor may allow for continual improvement opportunities. Experienced auditors review a vast selection of processes and products, hence the auditor may offer examples where a similar process or system can be implemented in an effective manner. Auditors are not permitted to consult during a third-party audit; however, some offer hypothetical examples to the auditee from previous experience. Due to the restriction regarding consulting, subjects believe that this continual improvement (offering examples) opportunity is limited.

Most subjects believed that continual improvement opportunities are not a result of the third-party audit. Subjects provided multiple reasons, and in the words of one subject, "Continual improvement is not driven by any third-party audit; continual improvement is an organizational philosophy that is only successful if ingrained in the organizational culture, the audit won't help or hinder this way of thinking." As explained in the research question 1 summary, subjects conveyed that audit findings, reports, and conclusions are both trivial and compliance-focused, therefore offering no continual improvement opportunities. One subject cited a particular instance of a trivial finding:

> The auditor asked if we verify that all of the supplied components have an approved IMDS entry during the PPAP process. I answered yes and each sample the auditor selected demonstrated compliance with the IMDS requirement. The auditor asked for our procedure regarding customer specific requirements. In this procedure IMDS was not specifically mentioned, but we told the auditor it is part of a checklist within the APQP process. The auditor deemed this unacceptable and wrote a nonconformance stating that the organization had no process to disseminate and communicate customer specific requirements throughout the organization.

Several subjects reported that audit findings are trivial for each and every audit encountered. Many believed that continual improvement was not a function of the third-party audit and is something that is realized through organizational climate or development of a robust QMS. Additionally, subjects stated that internal audit programs, changes to the ISO/TS standard, OEM customer-specific requirements, and Automotive Industry Action Group (AIAG) special process assessments offer opportunities for improvement. Last, a majority of subjects indicated that the organization's main goal is to pass or complete the audit with as few findings as possible; continual improvement based on the third-party audit is not even a consideration by the organization management team. As one subjected mentioned,

> How could this process be seen as continual improvement? It's really about verifying if requirements of the standard are met. My boss expects us to pass the audit with as few nonconformances as possible, this is sort of a report card, so I do whatever it takes to get zero findings.

The general perception is that minimal continual improvement opportunities can arise from the audit; however, other tools such as internal audits, internal systems, organization climate, customer specific requirements, and AIAG special process assessments are more apt to drive continual improvement activities. For the most part, subjects think that the third-party audit is not a continual improvement driver, nor does their respective organization consider this as an activity that can improve the business.

Results: Research Question 3

The third research question stated, "As currently defined, are the current third-party audit practices effective or is there a need for a system overhaul?" This question generated the most dialogue amongst the subjects. Some of the subjects did express that the audit process is not perfect and required improvement, but also indicated that changes implemented over time are effective and thus a radical change to the third-party audit process was not necessary. Examples of the positive changes include the process approach to auditing, OEM customer specific requirements, added scrutiny and oversight by the International Automotive Oversight Bureau (IAOB) regarding ISO/TS registrars (only 47 on approved registrar list), and recently, an OEM has began providing supplier scorecards directly to the registrars prior to an organization's audit. Although it was recognized that the audit process was less than perfect, some subjects believe that over time, changes to the audit process and ISO standard would incrementally be implemented thus continually improving effectiveness of audit practices. A small number of subjects believed that issues such as the ability for the auditor to offer recommendations or identify specific product deficiencies is not the intent of the audit process and therefore should not be considered as a necessary change to the process.

Most subjects believe that changes to the third-party audit process are needed. A change cited by a majority of the subjects centered on the auditor (registrar) and auditee (the organization) relationship. In the third-party audit process, the auditee hires the registrar who will ultimately provide the certification. As part of that process, the auditee can choose the auditor(s) who will be onsite to conduct the audit. Although this does not appear to be problematic, subjects claim this has a clear affect on the audit outcome. As noted by one subject, "Each cycle I get to choose my auditors, I always, if possible, choose one who is known to be easy over an auditor with a reputation of writing multiple nonconformances, why would I make my life hard?" Another subject claimed, "I can and do manipulate my auditor, when he arrives I provide a flash drive with the documents he wants to see, I go back to my office and tell him to get me if he has questions." Subjects report that auditors who offer too many findings are not preferred. Auditors with this reputation are often not invited to return to the organization. Rules in the ISO/TS scheme limit this practice; however, this is a significant issue as reported by subjects. Subjects claimed that since the majority of auditors work as independents (i.e., consultants, trainers, auditors), meaning they are not direct employees of the registrar, being too hard (writing too many findings) on an organization can directly translate into lost audit days for the auditor. This diminishes the objectivity of the audit process. To summarize one subject's perspective,

> There is a particular auditor that has the reputation for being meticulous, none of our business units accepts this auditor, but the ironic part is, this person is one of the best auditors I've encountered as this auditor simply follows the letter of the law and it results in many findings, but no one wants that.

Lost audit days could mean diminished income for the auditor. Subjects also stated that the realistic side of auditing might hinder the process. Auditors are essentially self-employed thus are subject to the same constraints such as personal schedule conflicts, travel limitations, and pressure to retain clients. Numerous subjects cited instances of audits not being executed to the mandated duration. A majority of subjects reported auditors trim several hours or more from the required audit time. Additionally, a large organization with multiple operating units holds a similar check and balance over the registrar. A few subjects from organizations with over 75 operating units report leverage over the chosen registrar by virtue of the volume of audits required. A registrar with such a significant amount of business will want to retain this business. If the registrar gains the reputation of being particularly cumbersome for the organization, the contract may not be renewed. As presented in the literature review, this relationship does not, according to definition, equate to a third-party audit process since the auditee is the paying customer.

A second issue reported by a majority of subjects focused on audit efficiency. Many subjects contend that in recent years, with incorporation of technology such as the laptop or tablet, auditors spend a significant amount of time during the audit typing the audit observations, entering evidence, and updating the audit report. Subjects think that the time spent at the facility should be primarily dedicated to actual auditing. However, most subjects do not complain to the registrar about this issue since the main goal is to pass the audit with as few findings as possible. One subject claimed, "My auditor spends a ton of time gathering and entering specific evidence, it's not really auditing, but the final report is detailed and gives the illusion of a comprehensive audit." Increased focus on completing the audit reports

leaves less time for actual auditing. Keeping in mind the goal of passing the audit with minimal findings, subjects are not motivated to report audit inefficiencies to the registrar.

Subjects deemed the need for subsequent audit cycles as problematic and in need of change. All subjects interviewed were auditees for at least one full 3-year audit cycle. These subjects did not see the reason to repeat the same audit process regardless of the auditor being changed for the new cycle. Some of the subjects had been through three cycles with their respective organization and believed the audit value diminished with each cycle. As one subject noted, "If my facility goes through a full cycle and our findings are minimal, and we are satisfying the customer, it makes no sense to keep having the same audit to the same standard for another three years." Many did not support the mandatory changing of the auditor in future audit cycles because it meant altering the organization's systems since each auditor brings a unique interpretation of the standard. A few of the subjects reported a full audit cycle with zero findings, thus questioning the need for subsequent audit cycles. The current audit approach is to review customer performance at the onset of the audit, identify any areas that are the source of poor customer performance and audit the appropriate systems. Based on this approach, subjects believed that audits could be reduced or eliminated for organizations with acceptable customer performance.

Several subjects commented on the original intent of the third-party audit process. In general, subjects reported an increase in second-party audits, particularly in the last 7 years. As presented in the literature review, the original intent of the system was to implement a common, objective QMS standard thereby reducing the need for customers to conduct multiple audits of a particular organization. Subjects believed this goal has not been fulfilled. In addition to the third-party audit, organizations are now receiving multiple customer audits.

Furthermore, most subjects reported auditor interpretation of the standard as problematic. Subjects believe that each auditor's interpretation of the standard varies and this leads to changing key items such as control plans, failure mode effects and analysis (FMEA's) or work instructions to suit the views of that particular auditor. A frustrated subject asserted, "Every three years we change our documentation to accommodate the new auditor, it is non-value added." Additionally, many think the ISO/TS standard is vague, and promotes the conflicting interpretations offered by auditors.

A final area subjects believed is deficient is the lack of assessment of organizational soft skills critical to quality performance. Items such as organizational climate, human resource practices, motivational programs, knowledge management, employee satisfaction, and employee involvement are generally considered critical to quality; however, the current audit process essentially overlooks these concepts. An overhaul of the audit process and ISO/TS standard would be necessary to incorporate these items into the audit process.

In conclusion, a central theme offered by most subjects focused on the relationship between the registrar and the organization. Subjects expressed multiple concerns that significantly affect the effectiveness of third-party QMS audits. To address the concerns would require a fresh, innovative approach to auditing, and a major change in philosophy by the writers of the ISO/TS standard. The amount of significant issues offered by subjects suggests the need for numerous audit process revisions.

Results: Research Question 4

The fourth research question asked, "Do the audit findings lead to cost savings and process improvements that justify the third-party audit tangible and intangible costs?" Although a couple subjects believed the third-party audit process led to intangible cost saving

opportunities, most think that the audit process offered no tangible payback. During the interviews of each subject, the researcher posed the following question: "Has any audit finding generated savings equal to or greater than the cost of the audit?" No subject was able to answer yes to this question. Some subjects stated that if an audit finding was product-related and prevented defective product from reaching the customer, tangible savings would be realized and justify the audit cost. Subjects noted this rarely occurs and no subject offered an actual example. In one subject's view, "The audit is not cost effective nor does it offer savings opportunities, we pay for the audit and it ties up multiple resources for multiple days, we don't save anything."

Overall, feedback on this question was minimal; subjects did not elaborate nor did subjects think that audit findings justify the audit costs (tangible or intangible costs) or offer cost savings. A few subjects believed that intangible savings are realized, but did not offer a concrete example.

Results: Research Question 5

The fifth research question stated, "Do management representatives consider the third-party auditor as technically astute and qualified to audit their respective facilities?" Most subjects considered the majority of ISO/TS auditors as technically competent to audit automotive quality systems. Few subjects experienced an occasional auditor lacking the necessary skills; however, all mentioned that this was not typical. Depending upon the process, product, or commodity audited, subjects experienced different levels of competency. Some auditors were quite knowledgeable, while others had rarely audited a particular process, which resulted in misguided questions and audit trails. A majority of the subjects reported a wide variance of skill sets between auditors. Most subjects concluded that the

auditors were not knowledgeable enough about their organization's process to identify significant problems. Subjects did not see this as a weakness of the audit process. In the view of one quality manager,

> Our current auditor is a very good quality systems auditor and he has a decent knowledge of molding (the subjects core process) but could he sit and talk shop with the molding engineers? No, but I don't think this is the intent of the third-party audit nor is it a weakness.

Most believed that even a knowledgeable auditor would not discover a significant issue due to the constraints of the audit schedule. Auditors are required to evaluate many processes during each audit; a majority of the subjects perceived the amount of time required to conduct the audit as inadequate.

In summary, subjects reported auditors as competent to conduct compliance audits against the ISO/TS standard. However, when it came to technical competency regarding a particular process (i.e., molding, extrusion, stamping, etc.), auditor proficiency varied from reasonably knowledgeable to moderately lacking the skill set to properly assess a specific process. Subjects did not perceive this as an audit process weakness, and most subjects believe having a qualified QMS auditor is sufficient.

Results: Research Question 6

The sixth research question was, "Is a third-party audit scheme and registration to ISO 9001:2008 and/or TS16949:2009 necessary and relevant in 2012?" Subjects offered valid reasons to both support and refute that third-party audits are relevant in 2012. In support of the process, many stated that the third-party audit process is relevant since it offers an objective assessment against a standard that outlines basic quality system requirements.

The process does assure that organizations supplying automotive components have some resemblance of a structured, functioning QMS in place. Furthermore, most subjects claimed that smaller organizations with limited resources need the audit process to offer a check and balance for the organization's QMS. Many subjects think that a total elimination of the process would be problematic for the industry. When asked to explain further, one subject stated, "Even though the process does not necessarily add value, at least we know our suppliers possess a basic QMS that is periodically assessed."

While subjects believe the third-party audit process was necessary, several acknowledged that for some organizations, the process had become irrelevant. Subjects whose organizations had undergone multiple (more than two) audit cycles strongly agreed that subsequent audits are futile. Several stated that if the audit process were eliminated, the business operating strategy would not change since product quality is important and ingrained within the climate of the organization. Future audits would neither help nor hinder organizational performance. In many instances, subjects reported that a subsequent audit cycle is often frustrating to all who participate (i.e., engineers, quality technicians, etc.) in the audit; each auditor has a different interpretation causing non-value added changes to documentation deemed acceptable by the previous auditor. Although some subjects agreed that the third-party process becomes redundant for a mature organization, as a process to assess compliance to the ISO/TS standard, it is necessary and relevant.

Summary

While no single question was completely agreed upon by the subjects, a majority of the subjects agreed upon several major themes (a) the audit process adequately assesses compliance to the ISO/TS standard, (b) the audit process does not add value, (c) a conflict of

interest is caused by the current auditor-to-auditee relationship, (d) multiple audit cycles are not necessary, and (e) an organization with a mature QMS reaps no benefits from the audit process.

Chapter 5: Summary, Conclusions, Recommendations for Further Research

Introduction

This chapter presents the key emerging concepts derived from data analysis. The chapter concludes with suggestions for further research.

Summary of Research Questions

Research Question 1. "Do management representatives perceive the third-party audit process as beneficial and thus deem the audit process as value added?" The majority of subjects did not believe that the audit process added tangible value. On the other hand, most subjects considered the audit as adequate to assess compliance to the requirements defined in ISO/TS 16949.

Research Question 2. "Do management representatives believe the third-party audits process acts as a change agent or impels continual improvement within the organization?" Most subjects did not think that the audit process resulted in continual improvement opportunities.

Research Question 3. "As currently defined, are the current third-party audit practices effective or is there a need for a system overhaul?" Most subjects identify the need to revise the audit process. Subjects cited specific shortcomings with the audit process and believed that changes are necessary. A significant concern is the conflict of interest that exists between the auditor and the auditee. Furthermore, most subjects deem the requirement for continued audit cycles as not necessary especially for organization with a mature QMS.

Research Question 4. "Do the audit findings lead to cost savings and process improvements that justify the third-party audit tangible and intangible costs?" Subjects did not report cost savings resulting from the audit process.

Research Question 5. "Do management representatives consider the third-party auditor as technically astute and qualified to audit their respective facility?" Subjects found auditors to be technically astute and qualified to assess an organization QMS against the ISO/TS standard.

Research Question 6. Is a third-party audit scheme and registration to ISO 9001:2008 and/or TS16949:2009 necessary and relevant in 2012?" Subjects believed the process is relevant and necessary. Assessing compliance to the ISO/TS standard is necessary.

Emerging Themes

- The third-party audit process is satisfactory to determine an organization's compliance to ISO/TS16949. From a compliance to the standard perspective, this is fulfilling the intended requirement. Most subjects believed continual improvements opportunities are not realized from the process.
- Tangible value is not realized from the third-party audit process. Administrative audit costs and intangible audit costs (use of resources) are not supported by the audit results.
- Smaller organizations with fewer resources and immature QMS are more likely to reap value from an initial third-party audit cycle.
- The conflict of interest between the auditor and the auditee hinders the third-party audit process. Leverage over the auditors by the organization reduces objectivity of the process. An organization is free to select an auditor that suits the organization's needs. Requiring the auditee (the organization) to select and fund the audit process conflicts with the definition of a third-party audit.

- The requirement for continued three-year audit cycles is redundant and not necessary. Organizations that complete a full audit cycle and possess a robust quality management systems gain nothing by repeating the cycle multiple times.
- Mature organizations with proven, robust quality management systems do not benefit from the third-party audit process. Often product quality and quality assurance are strategic company goals; the audit process is not needed to drive these activities.

Conclusions

- Revise the ISO/TS standard to incorporate requirements that drive continual improvement and offer value to an organization.
- Develop the structure whereby the organization does not have leverage over the auditor.
- Remove the requirement for continued audit cycles for organizations that have demonstrated compliance to requirements. Reduce or eliminate the requirement for continued audit cycles.
- Incorporate assessment of quality management system level of maturity as a method to determine if an organization is in need of a third-party audit.

This study suggests that, by and large, tangible value is not a benefit of the third-party audit process. When viewed from a compliance perspective, third-party QMS audits are adequate, but in need of improvements and systemic changes. Revising the audit process to simultaneously add value and assess compliance is not a simple task yet must be explored. As a compliance assessment tool (to the ISO/TS standard), the third-party audit has merit.

However, as a value added activity, or a continual improvement tool, the third-party audit process is ineffective, insufficient and in need of significant changes.

Theoretical Implications

Many have offered critique and presented the shortcomings of the audit process. This research served to validate the views of individuals such as Sayle (1995, 1999), Douglas (2000), Gordon (2000), and Dalgleish (2006). Additionally, researchers such as Karapetrovic and Willborn (2000, 2002) and Beckmerhagen et al. (2004) have all questioned audit effectiveness and have offered alternate methods to conduct effective, value added audits. This research served to explore perceptions of quality professionals experienced with the third-party audit process and thereby substantiated claims made by these individuals. The following section used the emerging themes and conclusions to describe a model for an improved third-party audit process.

Kluse Utopian Third-Party Audit Model

An improved process would eliminate the current auditor (registrar) to auditee (organizations) relationship. Under the current scheme, the organization is the customer and pays for the audit process. This is not, by definition, a third-party audit. Create an oversight agency with authority to regulate the quality management systems of all approved automotive suppliers. OEM's that support the ISO/TS standard should help fund the audit process. Similar to the EPA assessing compliance with mandated pollution controls, the oversight agency would have authority over a supplier's quality management system. In lieu of creating a new agency, the existing International Automotive Oversight Bureau (IAOB) could be re-structured to support this approach, or an organization such as the American Society for Quality (ASQ) could fulfill the role. Certainly pros and cons of such an agency

exist; however, if the OEMs fund the process and value is not realized, it could be quickly revamped with necessary changes. This approach would eliminate the current relationship deemed undesirable. The conflict of interest is removed and the audit would be a true third-party audit. By allowing the OEM's and the oversight board the authority to administer, fund, and regulate the audit process, ad hoc changes could be made to address the needs of the ever-changing automotive industry.

A second element of the desired model is development of an automotive specific quality management standard not governed by the International Organization for Standardization (ISO). Incorporate improvement and performance evaluation into the standard similar to assessment models such as Malcolm Baldrige Criteria for Excellence or the European Foundation for Quality Management (EFQM) Model for Excellence. ISO 9001 is 25 years old. It had a minor revision in 1994 and underwent its first major overhaul in 2000. A minor revision followed in 2008. ISO reviews a standard every 3 years for adequacy and in March 2012, the ISO responsible subcommittee voted to revise the current standard. The predicted publish date is approximately 2015. Revision of this critical standard twice in 28 years is inadequate. This cannot keep up with the dynamic requirements of the automotive industry. The current process lead by ISO will not allow the standard to support the automotive industry needs; consequently, the standard and audit process will always be antiquated. The automotive community should own, develop, and implement new quality management standards and auditing practices that will keep up with the industry requirements.

A third aspect is to formally assess an organization's QMS maturity level prior to mandating any subsequent third-party audit cycle. All applicable organizations would have

to initially endure an audit cycle, but the audit process would cease if the organizational performance is satisfactory and maturity level is acceptable. ISO 9004:2009 outlines a self-assessment process that culminates in an organizational maturity rating ranging from a one (no formal approach) to a five (best in class performance). An organization with acceptable customer performance and a self-rating above a three should have the next audit cycle waived. Furthermore, allow these organizations to conduct self-assessments similar to the audit process described by Karapetrovic and Willborn (2002) for one full audit cycle in lieu of a third-party assessment. The oversight board could mandate that self-assessment reports be periodically filed by each organization. An organization with a rating of two or less would be required to have a full audit cycle. A rating of three would allow for a reduced audit scheme. A member of the International Automotive Oversight Bureau (IAOB) would independently verify the organization's self-assessment.

Last, the IAOB should develop and agree upon audit effectiveness goals as part of third-party audit requirements. The IAOB should consider using a similar concept as presented by Beckmerhagen et al. (2004). The auditor and auditee should jointly develop the effectiveness goals prior to the audit. Furthermore, the lead auditor should review progress made towards effectiveness goals at various stages during the audit and make goal assessment and achievement mandatory criteria for the audit closure. Currently, a periodic debrief takes place during the audit to inform the auditee of any formal findings. This practice would be replaced by a concurrent review of effectiveness goals. Failure to meet effectiveness goals should result in compensation to the organization or discontinuation of the audit. The illustration below depicts the model described in the above discussion. Under this model, value is added, compliance is maintained, and the system is now flexible to react

to the current automotive industry needs. If the quality management standard or audit process is in need of change, the IAOB could assemble a committee to revise and implement an improved standard. Currently with ISO, this process takes years to accomplish.

This model differs significantly from the current process and is a specific application to the automotive registration scheme. Noteworthy differences include:

- The governing standard (currently ISO/TS 16949) is owned by the IAOB. This will allow the standard to maintain pace with the automotive industry. Under the current system, the standard has only seen one major revision since 1987.
- The maturity of an organization's QMS is considered prior to requiring a third-party audit. The current system ignores this aspect of the process. Many fine organizations undergo multiple audit cycles that are simply not necessary. Why repeat an audit cycle against the same standard?
- Establishment of effectiveness goals as part of the third-party audit process is mandatory. While the audit is being conducted, the lead auditor should review progress towards these goals. The current process does not consider audit effectiveness. Although an appeals process is defined, trivial audit findings often go unchallenged.
- Acceptance and use of *self-audits* as described by Beckmerhagen, Berg, Karapetrovic, & Willborn (2004) as an essential part of the registration scheme. The current system requires the use of *internal audits*; however, these audits differ significantly from *self-audits*.
- Establishment of a true authoritative board. The oversight board and not the organization (auditee) should fund the third-party audits. Under the current

> scheme, the third-party audits, by definition, and by virtue of the registrar-organization relationship, are not true third-party audits. Additionally, if the oversight board is financial responsible and the process is deemed non-value added, the process could be modified or eliminated. The system does not currently have this critical check and balance. This researcher could not imagine a single OEM that would finance a non-value added process.

The *Kluse Utopian Third-Party Audit Model* represents a fundamental change to a process considered by many to be non-value added. Criticism offered by Sayle (1995) in 1995 has been largely ignored. This model and the associated research validates the perspective of Sayle's (1995), Douglas (2000), Gordon (2001), Karapetrovic and Willborn (2002), Beckmerhagen, Berg, Karapetrovic, & Willborn (2004), and Dalgleish (2006) and offers an alternative to the current process.

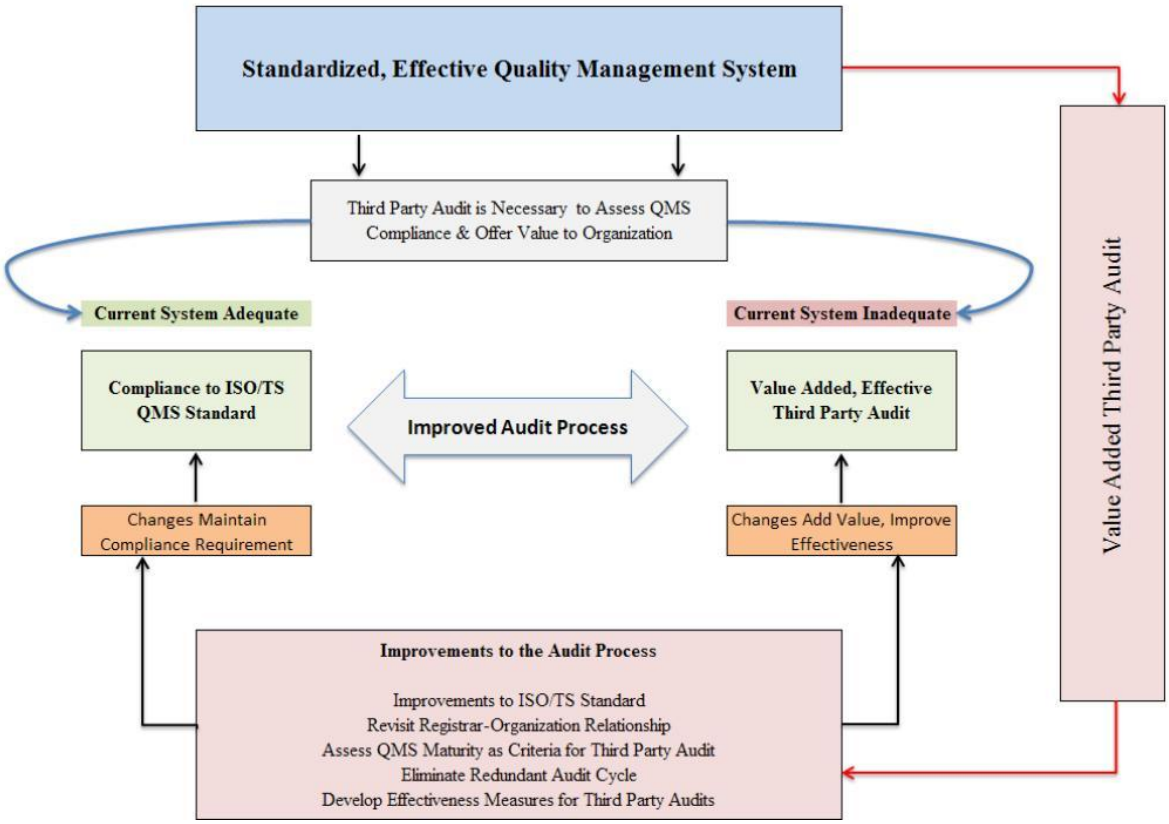

Figure 5. Kluse Utopian Third-Party Audit Model. Recommended changes will retain compliance requirement yet add value to the organization

Other Considerations Offered by Subjects

Many subjects identified the internal audit (within a single facility or among operating units within a corporation) as an effective auditing method that offers value and determines opportunities for improvement. The appropriate task force should revise the ISO/TS standard to incorporate detailed requirements for an internal audit program. Accordingly, the third-party audit process would only focus on a detailed audit and review of the organization's customer performance and internal audit program. Organizations that have a robust internal audit program coupled with acceptable customer performance would have a reduced third-party audit schedule and requirements.

The IAOB may consider modeling the process after the ISO17025 registration scheme. A few subjects cited the ISO17025 standard and audit process as a true value-added process. In Canada, experienced individuals serve as auditors for a 6-week cycle, and registrars and the employer share the cost. After completion of the 6-week auditor assignment, the individual returns to the position held prior to the audit assignment. This removes the current auditor (registrar) to auditee (organizations) relationship and offers the organization an experienced auditor. There is no reason for an auditor to be particularly easy when conducting an audit. This audit scheme promotes objectivity and fact-based auditing.

The IAOB may eliminate auditor subjectivity and inexperience through development of an auditor-training program. This program could require auditors to be certified within the product or commodity that one will audit. AIAG publishes multiple special process assessments; development of these special process assessments should continue. Auditors should receive training and become certified to these core processes. As discovered in this research, auditors are generally competent to audit quality systems; however, many are not experienced with a particular process. Being competent in various processes can lead to effective, value-added auditing.

These suggestions require multiple enablers to execute and permanently change the third-party audit process. Each of the suggestions requires further investigation.

Recommendations for Future Research

In addition to the suggested changes to the audit system, future research opportunities exist:

- Conduct a quantitative study to demonstrate the financial impact of the third-party audit process on ISO/TS16949:2009-certified organizations. How does the money spent on third-party audits impact company profits?
- Determine if an organization's quality and customer performance improves over time after becoming ISO/TS certified. Compare an automotive supplier that exhibits poor performance to an automotive supplier that exhibits satisfactory performance. Evaluate organizational performance for both suppliers prior to ISO/TS16949 certification. Document the performance trend after multiple third-party audit cycles.
- Conduct a quantitative study of management representatives with the automotive community to determine the percentage that support the third-party audit process and those that do not support the third-party audit process. Identify the significant reasons substantiating these views.
- Complete a case study on a successful, profitable non-ISO-certified manufacturing organization. Understand and describe the structure of the organization's quality management system.
- Conduct a Delphi study on the *Kluse Utopian Third-Party Audit Model*. Offer the model to experts for review, feedback and constructive critique.
- Investigate alternatives to the audit process as a method to determine QMS compliance and effectiveness. Understand how factors such as human resources practices, organizational climate and knowledge management affect an organizations quality-related performance.

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Appendices

Appendix A: Informed Consent

Third-Party Audits – Perceptions of the Third-Party Audit Process

Informed Consent

Title of Research: Third-Party Quality Management Audits for Automotive Component Manufacturing; Perceptions and Insights into a Necessary, yet Debatable Practice.

Researcher: Christopher Kluse, Doctoral Candidate, Eastern Michigan University

Rationale for Study: The third-party audit process is considered by some as value added and beneficial while others beleive it is superfluous and adds little organizational value. The research will describe the perceptions of management representatives concerning this process.

Procedure: You have been selected to participate in this research because you have previously expressed direct interest to this researcher (aka Christopher Kluse) that you are willing to participate in an interview regarding the third-party auditing process. Your name was obtained from via the Linkedin professional social networking website or via your professional affiliation with this researcher. The interview will be conducted in the following manner:

1. The researcher will contact you to mutually agree upon the interview time, interview style (face to face or via telephone) and location (if face to face).
2. On or before the interview scheduled time and date, you will be presented with this informed consent document and will be asked

to offer consent by signing the document. If the interview is via telephone, this informed consent will be sent via e-mail for review prior to the interview. Consent shall be returned via e-mail on or before the date of the scheduled interview. If consent is not granted, the interview will not be conducted.

3. The interview will begin with a series of background information questions. Directly following these questions, a sequence of questions relating to the third-party audit process will follow. The interview is divided into six main segments; each segment is a unique theme relating to third-party audits. The entire interview will take approximately 45 to 60 minutes to complete.

Note: All interviews will be recorded.

Completion Time: Approximately 45 to 60 minutes to complete the interview process.

Confidentiality: All responses and research data remain completely confidential. Only the researcher will transcribe the interview. All interview transcripts are protected and secure. The researcher's local hard drive that is not in the public domain and is password protected. The drive can only accessed by the researcher.

This study is for the completion of the researcher's Doctoral Dissertation at Eastern Michigan University. The completed dissertation will be posted to UMI (http://disexpress.umi.com/dxweb) and to the Eastern Michigan University library. Both of these web sites are publically accessible and can be located via an internet

search engine. Additionally, future professional publications authored by the researcher may use data obtained from this research. In all instances of publication (dissertation or professional publication) confidentiality will be maintained. Your name and your employer name will never appear in any publication. Additionally, your answers and information will not be shared with your employer nor will your employer be provided knowledge that you have participated in this study. All data will be summarized, categorized and be presented in aggregate, qualitative format. Your specific answers will never be associated with your name or your company. Confidentiality of the raw data (interview transcripts) will be maintained as described in the first paragraph of this section.

Expected Risks: There are no risks associated with this research because the data will be confidential as noted in the *confidentiality* section above. Your name and your employer name will never appear in any publication. Additionally, your employer will not be informed of your participation in this study.

Expected Benefits: You will not realize any personnel benefits by participating and completing the interview. The study will add to the scholarly literature and body of knowledge.

Voluntary Participation: Participation is entirely voluntary. After you agree to participate and offer consent, and at any point during the interview, you can

withdraw without negative consequence. If you choose to withdraw from the interview, your answers and information will not be shared with your employer nor will your employer be provided knowledge that you have participated or were involved with this study.

Questions: Current and future questions can be directed to the researcher, Christopher Kluse, via e-mail. The e-mail address is ckluse@emich.edu.

Results: If you would like the results from this study, please contact the researcher directly using the e-mail address above.

Human Subjects Review Board: This research protocol and informed consent document has been reviewed and approved by the Eastern Michigan University Human Subjects Review Committee for use from June 25th, 2012 to June 25th, 2013. If you have questions about the approval process, please contact Dr. Deb de Laski-Smith 734.487.0042, Interim Dean of the Graduate School and Administrative Co-Chair of UHSRC, human.subjects@emich.edu.

Consent to Participate: I have fully read and understand all requirements being asked of myself as a participant in this interview. Additionally, I understand the procedures, risks, and benefits of the research. At this time all of my questions have been answered. I fully consent to participate in the interview.

_____ _____

Subject Date

Appendix B: Interview Schedule

Opening the interview

I am Christopher Kluse, PhD candidate at EMU conducting research regarding perceptions of the third-party audit process. I have over 20 years experience in manufacturing and quality assurance. I am seeking to quantify and understand management representatives views of the third part audit process. Specifically, I would like to understand the following:

Is the third- party audit process value added?

Does the third-party audit process promote continual improvement?

Is the third-party audit process effective?

Does the third-party audit process audit promote cost savings within the organization?

Are third-party auditors technically qualified to audit your process and facility?

Ultimately, is the third- party audit process relevant and necessary?

Findings from this research will enhance the academic literature and provide essential information to interested stakeholders and any organizations or individuals affected by the third-party audit process.

The interview should last approximately 45 minutes. All responses are anonymous and confidential. Please review a copy of the informed consent I have provided. Once you have read and agree with the consent, please sign and the interview will commence. I will record the interview as a method for data collection.

Interview Schedule	
Research Question	**Potential Interview Questions**
Do management representatives perceive the third party audit process as beneficial and thus deem the audit process as value added?	In your experience, are audits value added? Does the time and money spent preparing for, and participating in the audit add value to the process and/or product?
	If "yes" please describe, why and offer examples when an audit(s) has added value
	If "no" please describe why and offer specific examples.
	Is there a tangible and/or intangible payback to the audit fees?
	What could be changed to make the audits value added and beneficial?
Do management representatives believe the third party audits process acts as a change agent or impels continual improvement within the organization?	Has the third party audit process served as a process which initiates and drives continual improvement of the QMS?
	If "yes" please describe how this process has initiated continual improvement.
	If "no" please describe how the process does not support continual improvement efforts.
	What can be changed or improved to allow the third party audit process to become a continual improvement driver?
As currently defined, are the current third party audit practices effective or is there a need for a system overhaul? If so what changes are suggested?	Describe the audit process effectiveness to assess conformance to the standard and evaluate the organizations QMS.
	Do audits fulfill your organizations expectations?
	If viewed as not effective, what can be changed to assure audit effectiveness?
	If viewed as effective, what within the process works well, provide examples as necessary
Do the audit findings lead to cost savings and process improvements that justify the third party audit tangible and intangible costs?	Do audit non conformance findings generate cost savings or cost avoidances?
	If "yes" please describe situations or examples that have lead to cost savings and/or cost avoidances.
	If "no" please describe why findings do not justify audit costs.
	Are the audits costs justified by the audit process outputs?
	What can be changed to allow audits to generate a payback or a return on audit fees?

Interview Schedule (cont.)	
Research Question	**Potential Interview Questions**
Do management representatives consider the third party auditor as technically astute and qualified to audit their respective facility?	Do you feel your current and previous auditors are qualified to audit your organizations processes and commodity?
	Describe or offer examples to support your position on auditor competancy.
	What can be improved in the audit process that will better prepare auditors?
Is a third party audit scheme and registration to ISO 9001:2008 and/or TS16949:2009 necessary and relevant in 2012?	Does your organization need to have a third party audits in order to satisfy customers or to fully comply with requirements of the standards?
	In lieu of these audits, how could customers be assured suppliers have an effective QMS?
	Can product quality be assured in absence of a third party audit process?
	What would happen if this was eliminated tomorrow?
	In your experience, has the number of second party audits increased since the initial release of ISO9000:2000?

Closing the Interview

Please provide any further and insight and experiences you would like to share (not covered in this interview) regarding the current third-party audit process. Additionally, do you have specific questions of the researcher or the intent of this research?

Appendix C: Coded Data

Data Coding Table		
Subjects Statement	**Code**	**Question**
An objective view of the process while it may not add value, certainly has a opportunity to find areas of concern, therefore value is added	A	Q1
Audits are heading in the correct direction. There is a focus on customer performance and audit trails resulting from review of performance are value added	A	Q1
Audits promote standardization and helps promote structure therefore the audit adds value	A	Q1
Audits stimulate alternative thinking which could lead to value added activities	A	Q1
Business gained from being ISO or TS registered	A	Q1
If an area that is audited lacks attention, an NC written against that area will be management attention thus add value	A	Q1
Organizations with a weak QMS or immature QMS benefit from audits	A	Q1
Registration promotes growth of customer base so audits are value added	A	Q1
Organizations with a strong QMS and commitment from management do not realize value from audits	B	Q1
A mature organization with a mature QMS does not realize value from audits	B	Q1
A mature organization with a robust QMS would not realize CI opportunities	B	Q1
A third party audit will never find hidden problems	B	Q1
An audit that results in 0 NC's is not value added	B	Q1
An organization with a strong management commitment does not realize value from audits	B	Q1
Findings are compliance gaps, however these findings are not necessarily value added for the organization	B	Q1
Senior managers are not interested in audit NC's since they are trivial. As a result this add no value to the organization	B	Q1

Data Coding Table		
Subjects Statement	**Code**	**Question**
Small company would not realize cost benefits from audits because it is too much money to obtain the piece of paper	B	Q1
The quality department drives all activities for audits so it does not add value for the organization	B	Q1
Third party audits are seen as a resource drain, audits do not add value. By definition, value add is a process the customer is willing to pay for. I don't know any OEM who would accept a charge for a third party audit	B	Q1
Third Party audits do not add tangible value	B	Q1
CI as a result of the audit is driven by management commitment	C	Q2
CI opportunities are realized when OFI's are tracked and addressed in a structured method	C	Q2
Review of OFI's after the audit leads to CI activities	C	Q2
The audit has offered CI opportunities in a facility that exhibited a weak QMS	C	Q2
Third party auditors do see a wide variety of systems, CI opportunities could be offered	C	Q2
A properly written audit finding against process or product performance will offer CI opportunities to the organization	C	Q2
Customer specific requirements drive CI, the third party compliance audit does not	D	Q2
Internal audits drive CI, third party does not	D	Q2
Many NC's are trivial therefore CI opportunities are not realized	D	Q2
Nonconformance's do not drive CI or cost savings	D	Q2
Substantial, non trivial NC's do lead to CI and add value, however trivial NC's occur almost every audit	D	Q2
Audit NC's are compliance driven, this does not offer CI	D	Q2
Trivial NC's occur every audit, this does not drive CI	D	Q2

Data Coding Table		
Subjects Statement	**Code**	**Question**
CI is part of the organizational culture, audits will not promote CI efforts	D	Q2
CI opportunities are rarely realized, however the audit intent is compliance	D	Q2
The audit does not drive CI, the organization QMS is the CI catalyst	D	Q2
The main goal is to pass the audit therefore CI opportunities are not realized	D	Q2
A properly implemented QMS based off ISO/TS 16949 requirements is relevant and an overhaul is not needed.	E	Q3
Allowing auditors to offer recommendations can not work within the system nor is this the intent	E	Q3
Audit needs improvement, but overhaul not necessary. Recent changes are examples	E	Q3
Audit systems if not designed to police product quality	E	Q3
The audit process is adequate, however sometimes auditors are just not that good	E	Q3
The audit system has been improved over the years, for example the ISO 19001 revision, automotive approach, process approach to auditing	E	Q3
The audit system helps define QMS structure and sets a baseline	E	Q3
As a QMS management representative, my job is to pass the audit	F	Q3
As the management representative, I can always not bring back an auditor if he/she was too tough during an audit	F	Q3
Audit focus become administrative in nature, too much time spent writing audit report and observations	F	Q3
Audit focus is too much on gathering evidence rather than evaluation of evidence	F	Q3
Auditing in QMS is not a career path so the system can't improve	F	Q3
Auditor spends a vast amount of time writing report or typing on computer	F	Q3

Data Coding Table		
Subjects Statement	**Code**	**Question**
Auditors are limited and can't provide recommendations, this should be reconsidered	F	Q3
Auditors can be easily manipulated because of customer audited relationship	F	Q3
Auditors do not have enough time to fully audit an organization	F	Q3
Auditors work for themselves and are under pressure for travel, time, etc.	F	Q3
Audits are a mere sample. There are not methods to assure that the sample reflects the entire system, therefore this needs addressed if third party audits seek credibility	F	Q3
Audits are compliance in scope, not looking for product quality, therefore this needs to be changed	F	Q3
Due to constraint with the TS testing scheme, the auditor pool has greatly been reduced	F	Q3
In order to offer value, the third party audit should consider the customer facility as part of the audit.	F	Q3
My organization has gone through three cycles of TS audits (9 years) and in that time we have 2 NC's. Another three years will not offer our organization anything, the system needs revised to address this very common situation	F	Q3
No system exist to promote auditor technical competence in specific sectors	F	Q3
Organizations must follow and complete CAR's written by the auditor regardless whether the disagree or agree with the finding.	F	Q3
Since the process approach is based on performance to the customer, a supplier with acceptable customer performance should not be subject to third party audit.	F	Q3
Since the auditee pays for the audit and can select the auditor, the system needs a change	F	Q3
The auditee is the customer, if the customer is dissatisfied, the auditor may not be asked to audited again within the organization	F	Q3
The auditor can show up at any time, I would not prepare for an audit because auditors won't find real issues	F	Q3
The auditor works for the auditee therefore objectivity is compromised	F	Q3
The ISO/TS standard offers too much subjectivity; auditors all interpret differently	F	Q3

Data Coding Table		
Subjects Statement	**Code**	**Question**
The standard establishes the baseline, but OEM's add requirements, so the original goal to reduce audits and communize to one system has failed	F	Q3
The standard is too generic, it is difficult to audit and add value	F	Q3
The system is broken but too bureaucratic to fix - OEM's not willing to admit	F	Q3
The system should be revised to consider items such as organizational culture since this can affect quality performance just as much as implementation of a robust process.	F	Q3
The third party audit process should focus on assurance that internal audits function well as these are value added. Fix the systems to focus on assurance of a good internal audit program	F	Q3
There is no motivation or career path to become a professional auditor, it for retires those who became unemployed	F	Q3
Third party audits lack objectivity, therefore system need an overhaul	F	Q3
Third party audits were supposed to eliminate or significantly reduce customer audits; this has not occurred	F	Q3
Cost can be avoided if audit observations are product related and help avoid shipping a bad part to the customer	G	Q4
The intangible value offered by the audit process does provide a cost savings potential	G	Q4
Considering the adminstrative costs and resource comminttments, the audit will not offer a payback	H	Q4
The admistrative costs of the audits does not equal the value offerd by the audit findings and reports	H	Q4
Audits drain resources, I do not get a payback for the amount paid for the audit and full audit cycle	H	Q4
Audits do not save money	H	Q4
Auditors while not technically astute in commodity specific process, are competent to audit QMS	I	Q5
Some auditors are technically competent in a given commodity while others are not	I	Q5
A gap exists between auditor technical knowledge and automotive processes (such as molding, chrome, extrusion, etc.)	J	Q5

Data Coding Table		
Subjects Statement	**Code**	**Question**
Auditors do not have the same level of experience and knowledge	J	Q5
Auditors do not posses the skills to find technical problems	J	Q5
Auditors focus on items that are not really important to the overall quality and productivity of the organization and its products	J	Q5
Auditors will never be technically astute to talk shop	J	Q5
Auditors do not have the time or expertise to find CI items for a given process	J	Q5
Audit is still relevant. The check and balance offered at least assures a basic system in operating and in place	K	Q6
OEM audits serve as an enhancement to QMS audits - this is what assures product quality	K	Q6
Smaller, less mature organizations need to have the check and balance of the audit	K	Q6
Third party is relevant because it does assure that at least some basic QMS is in place and it must be maintained	K	Q6
Audits are not necessary for a mature organization	L	Q6
Processes are in place, the audit merely finds when something with the process is not executed, this is not needed	L	Q6
The QMS or business system would not change if auditing was eliminated	L	Q6
Third party audit is not relevant or necessary in most cases	L	Q6
Continual audit cycles for an organization that has undergone multiple audit cycles becomes irrelevant even if the auditor is rotated; this means we have to adopt to the new auditor	L	Q6

Key	Code	Question
Third Party Audits are Value Added	A	Q1
Third Party Audits are Not Value Added	B	
Third Party Audits Promote Continual Improvement	C	Q2
Third Party Audits Do Not Promote Continual Improvement	D	
Third Party Audit overhaul is not needed	E	Q3
Third Party Audit overhaul is needed	F	
Third Party Audits Lead to Cost Savings	G	Q4
Third Party Audits Do Not Lead to Cost Savings	H	
Management Representatives Consider Third Party Auditors Technically Astute	I	Q5
Management Representatives Do Not Consider Third Party Auditors Technically Astute	J	
Third Party Audit are Necessary and Relevant in 2012	K	Q6
Third Party Audit are Not Necessary and Relevant in 2012	L	

Appendix D: Categorized Data

Data - Research Question 1

Do management representatives perceive the third party audit process as beneficial and thus deem the audit process as value added?

Subject statements: Third Party Audits are Value Added	Subject Statements: Third Party Audits are Not Value Added
An objective view of the process while it may not add value, certainly has a opportunity to find areas of concern, therefore value is added	Organizations with a strong QMS and commitment from management do not realize value from audits
Audits are heading in the correct direction. There is a focus on customer performance and audit trails resulting from review of performance are value added	A mature organization with a mature QMS does not realize value from audits
Audits promote standardization and helps promote structure therefore the audit adds value	A third party audit will never find hidden problems
Audits stimulate alternative thinking which could lead to value added activities	An audit that results in 0 NC's is not value added
Business gained from being ISO or TS registered	An organization with a strong management commitment does not realize value from audits
If an area that is audited lacks attention, an NC written against that area will be management attention thus add value	Findings are compliance gaps, however these findings are not necessarily value added for the organization
Organizations with a weak QMS or immature QMS benefit from audits	Senior managers are not interested in audit NC's since they are trivial. As a result this add no value to the organization
Registration promotes growth of customer base so audits are value added	Small company would not realize cost benefits from audits because it is too much money to obtain the piece of paper
	The quality department drives all activities for audits so it does not add value for the organization
	Third party audits are seen as a resource drain, audits do not add value. By definition, value add is a process the customer is willing to pay for. I don't know any OEM who would accept a charge for a third party audit

Data -Research Question 2

Do management representatives believe the third party audits process acts as a change agent or impels continual improvement within the organization?

Subjects Statements: Third Party Audits Promote Continual Improvement	Subject Statements: Third Party Audits Do Not Promote Continual Improvement
CI as a result of the audit is driven by management commitment	Customer specific requirements drive CI, the third party compliance audit does not
CI opportunities are realized when OFI's are tracked and addressed in a structured method	Internal audits drive CI, third party does not
Review of OFI's after the audit leads to CI activities	Many NC's are trivial therefore CI opportunities are not realized
The audit has offered CI opportunities in a facility that exhibited a weak QMS	Nonconformance's do not drive CI or cost savings
Third party auditors do see a wide variety of systems, CI opportunities could be offered	Substantial, non trivial NC's do lead to CI and add value, however trivial NC's occur almost every audit
A properly written audit finding against process or product performance will offer CI opportunities to the organization	Audit NC's are compliance driven, this does not offer CI
	Trivial NC's occur every audit, this does not drive CI
	CI is part of the organizational culture, audits will not promote CI efforts
	The main goal is to pass the audit therefore CI opportunities are not realized
	CI opportunities are rarely realized, however the audit intent is compliance
	The audit does not drive CI, the organization QMS is the CI catalyst

Data - Research Question 3

As currently defined, are the current third party audit practices effective or is there a need for a system overhaul?

Subject Statements: Third Party Audit overhaul is not needed	Subject Statements: Third Party Audit overhaul is needed
A properly implemented QMS based off ISO/TS 16949 requirements is relevant and an overhaul is not needed.	As a QMS management representative, my job is to pass the audit
Allowing auditors to offer recommendations can not work within the system nor is this the intent	As the management representative, I can always not bring back an auditor if he/she was too tough during an audit
Audit needs improvement, but overhaul not necessary. Recent changes are examples	Audit focus become administrative in nature, too much time spent writing audit report and observations
Audit systems if not designed to police product quality	Audit focus is too much on gathering evidence rather than evaluation of evidence
The audit process is adequate, however sometimes auditors are just not that good	Auditing in QMS is not a career path so the system can't improve
The audit system has been improved over the years, for example the ISO 19001 revision, automotive approach, process approach to auditing	Auditor spends a vast amount of time writing report or typing on computer
The audit system helps define QMS structure and sets a baseline	Auditors are limited and can't provide recommendations, this should be reconsidered
	Auditors can be easily manipulated because of customer audited relationship
	Auditors do not have enough time to fully audit an organization
	Auditors work for themselves and are under pressure for travel, time, etc.
	Audits are a mere sample. There are not methods to assure that the sample reflects the entire system, therefore this needs addressed if third party audits seek credibility
	Audits are compliance in scope, not looking for product quality, therefore this needs to be changed
	Due to constraint with the TS testing scheme, the auditor pool has greatly been reduced
	In order to offer value, the third party audit should consider the customer facility as part of the audit.
	My organization has gone through three cycles of TS audits (9 years) and in that time we have 2 NC's. Another three years will not offer our organization anything, the system needs revised to address this very common situation
	No system exist to promote auditor technical competence in specific sectors
	Organizations must follow and complete CAR's written by the auditor regardless whether the disagree or agree with the finding.
	Since the process approach is based on performance to the customer, a supplier with acceptable customer performance should not be subject to third party audit.

Data - Research Question 3 - Continued

As currently defined, are the current third party audit practices effective or is there a need for a system overhaul?

Subject Statements: Third Party Audit overhaul is not needed	Subject Statements: Third Party Audit overhaul is needed
	Since the auditee pays for the audit and can select the auditor, the system needs a change
	The auditee is the customer, if the customer is dissatisfied, the auditor may not be asked to audited again within the
	The auditor can show up at any time, I would not prepare for an audit because auditors won't find real issues
	The auditor works for the auditee therefore objectivity is compromised
	The ISO/TS standard offers too much subjectivity; auditors all interpret differently
	The standard establishes the baseline, but OEM's add requirements, so the original goal to reduce audits and communize to one system has failed
	The standard is too generic, it is difficult to audit and add value
	The system is broken but too bureaucratic to fix - OEM's not willing to admit
	The system should be revised to consider items such as organizational culture since this can affect quality performance just as much as implementation of a robust process.
	The third party audit process should focus on assurance that internal audits function well as these are value added. Fix the systems to focus on assurance of a good internal audit program
	There is no motivation or career path to become a professional auditor, it for retires those who became unemployed
	Third party audits lack objectivity, therefore system need an overhaul
	Third party audits were supposed to eliminate or significantly reduce customer audits; this has not occurred

Data Analysis Research Question 4

Do the audit findings lead to cost savings and process improvements that justify the third party audit tangible and intangible costs?

Subject Statements: Third Party Audits Lead to Cost Savings	Subject Statements: Third Party Audits Do Not Lead to Cost Savings
Cost can be avoided if audit observations are product related and help avoid shipping a bad part to the customer	Considering the administrative costs and resource commitments, the audit will not offer a payback
The intangible value offered by the audit process does provide a cost savings potential	The administrative costs of the audits does not equal the value offered by the audit findings and reports
	Audits do not save money
	Audits drain resources, I do not get a payback for the amount paid for the audit and full audit cycle

Data Analysis Research Question 5

Do management representatives consider the third party auditor as technically astute and qualified to audit their respective facility?

Subject Statements: Management Representatives Consider Third Party Auditors Technically Astute	Subject Statements: Management Representatives Do Not Consider Third Party Auditors Technically Astute
Auditors while not technically astute in commodity specific process, are competent to audit QMS	A gap exists between auditor technical knowledge and automotive processes (such as molding, chrome, extrusion, etc.)
Some auditors are technically competent in a given commodity while others are not	Auditors do not have the same level of experience and knowledge. There is a wide variation between auditors
	Auditors do not posses the skills to find technical problems
	Auditors will never be technically astute to talk shop
	Auditors do not have the time or expertise to find CI items for a given process

Data Analysis Research Question 6

Is a third party audit scheme and registration to ISO 9001:2008 and/or TS16949:2009 necessary and relevant in 2012?

Third Party Audit are Necessary and Relevant in 2012	Third Party Audit are Not Necessary and Relevant in 2012
Audit is still relevant. The check and balance offered at least assures a basic system in operating and in place	Audits are not necessary for a mature organization
OEM audits serve as an enhancement to QMS audits - this is what assures product quality	Processes are in place, the audit merely finds when something with the process is not executed, this is not needed
Smaller, less mature organizations need to have the check and balance of the audit	The QMS or business system would not change if auditing was eliminated
Third party is relevant because it does assure that at least some basic QMS is in place and it must be maintained	Third party audit is not relevant or necessary in most cases
	Continual audit cycles for an organization that has undergone multiple audit cycles becomes irrelevant even if the auditor is rotated; this means we have to adopt to the new auditor

Appendix E: Audit Cost Calculations

Typical three year audit costs

Activity	Req. Auditor Days	Man Day Rate	Off Site Report Fee	Total
Re-Registration Audit Report Fee	6	$1,000	$500	$6,500
Surveillance Audit Report Fee	3	$1,000	$500	$3,500
Surveillance Audit Report Fee	3	$1,000	$500	$3,500

3 year audit cost/organization	$13,500
North America Certifications	40,655
Europe Certifications	530,722
Total Certifications	571,377
3 yr audit cost/organization x total certs.	$7,713,589,500

Required audit days taken from *Automotive Certification Scheme for ISO/TS 16949:2002, p. 18 - 19.*

Cost estimate based off 400 employee's per organization and typical registrar audit rates for 2011