

**INDUSTRY ANALYSIS  
CERTIFICATION ORGANISATIONS  
IN NORTH AMERICA**

by

William Kulsky  
B.A. University of Calgary 1992

PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF  
THE REQUIREMENTS FOR THE DEGREE OF  
MASTER OF BUSINESS ADMINISTRATION

In the

Faculty of Business Administration

© William Kulsky 2006

SIMON FRASER UNIVERSITY



Summer 2006

All rights reserved. This work may not be reproduced in whole or in part, by photocopy or other means, without permission of the author.

# APPROVAL

**Name:** William Kulsky  
**Degree:** Masters of Business Administration  
**Title of Project:** Industry Analysis Certification Organisations in North America  
**Supervisory Committee:**

---

**Ed Bukszar, Ph.D.**  
First Reader  
Associate Professor, Strategy

---

**Neil Abramson, Ph.D.**  
Second Reader  
Associate Professor of Strategic Management

**Date Approved:**

August 11, 2006



**SIMON FRASER  
UNIVERSITY library**

## **DECLARATION OF PARTIAL COPYRIGHT LICENCE**

The author, whose copyright is declared on the title page of this work, has granted to Simon Fraser University the right to lend this thesis, project or extended essay to users of the Simon Fraser University Library, and to make partial or single copies only for such users or in response to a request from the library of any other university, or other educational institution, on its own behalf or for one of its users.

The author has further granted permission to Simon Fraser University to keep or make a digital copy for use in its circulating collection, and, without changing the content, to translate the thesis/project or extended essays, if technically possible, to any medium or format for the purpose of preservation of the digital work.

The author has further agreed that permission for multiple copying of this work for scholarly purposes may be granted by either the author or the Dean of Graduate Studies.

It is understood that copying or publication of this work for financial gain shall not be allowed without the author's written permission.

Permission for public performance, or limited permission for private scholarly use, of any multimedia materials forming part of this work, may have been granted by the author. This information may be found on the separately catalogued multimedia material and in the signed Partial Copyright Licence.

The original Partial Copyright Licence attesting to these terms, and signed by this author, may be found in the original bound copy of this work, retained in the Simon Fraser University Archive.

Simon Fraser University Library  
Burnaby, BC, Canada

## **ABSTRACT**

Manufacturers of electrical devices in North America have traditionally been regulatory bound to demonstrate that their products comply with all applicable national standards prior to distribution or use. The means and methods available to do so have substantially changed in the last two decades.

The purpose of this paper is to analyze the approach the certification industry has adopted to accommodate change and to evaluate its ability to evolve and meet foreseeable trends. The analysis will include use of Porter's Five Forces Framework to isolate the key issues facing certification industry and to identify both effective and ineffective practices of the leading firms in addressing these trends.

Current and future issues confronting the industry include staffing, globalisation, technology, corporate structure and methods of finance. Each variable is interconnected. Any change to one variable will effect the its relationship between the others.

## **DEDICATION**

To two people that helped me get this far.

To Evelyn – who will survive.

To my father – who did not.

## **ACKNOWLEDGEMENTS**

Thanks goes everyone that contributed to my successful completion of this program and this paper. Thanks to all the Segal faculty and staff that made every single moment of this program enjoyable. Thanks to Ed Bukszar for his help and for taking extra time to demonstrate to me the Stockholm Syndrome. Thanks to everyone at the office for your understanding and support.. Finally, special thanks to my team, the FantAstic Four – BeAtrice, CArl & DAve. Their genuine friendship will be a enduring element of this program.

# TABLE OF CONTENTS

<b>Approval</b> .....	<b>ii</b>
<b>Abstract</b> .....	<b>iii</b>
<b>Dedication</b> .....	<b>iv</b>
<b>Acknowledgements</b> .....	<b>v</b>
<b>Table of Contents</b> .....	<b>vi</b>
<b>List of Figures</b> .....	<b>ix</b>
<b>List of Tables</b> .....	<b>ix</b>
<b>Glossary</b> .....	<b>x</b>
<b>Chapter 1: Overview of North American Business Environment</b> .....	<b>1</b>
1.1 Introduction .....	1
1.2 History .....	2
1.3 Overview of Regulatory Issues.....	4
1.4 Main Competitors .....	6
1.5 North American Certification Body Market Size .....	7
1.6 Products and Services .....	8
1.7 Market Share.....	9
1.8 Growth.....	10
1.9 What are the Major Changes Expected in Technology? .....	10
<b>Chapter 2: Industry Analysis</b> .....	<b>12</b>
2.1 Rivalry amongst Existing Competitors.....	14
2.1.1 Rivalry – Few Accredited Laboratories .....	14
2.1.2 Rivalry – Corporate structure .....	15
2.1.3 Rivalry – Growth .....	16
2.1.4 Rivalry – MOU between Firms .....	18
2.1.5 Rivalry – High Switching Costs .....	19
2.1.6 Rivalry – High Exit Costs .....	19
2.1.7 Rivalry – Incumbents .....	20
2.1.8 Rivalry – Summary .....	25
2.2 Threat of Entry .....	29
2.2.1 Threat of Entry – Deregulation.....	29
2.2.2 Threat of Entry – Global Affiliations .....	30
2.2.3 Threat of Entry – Onerous Accreditation Process.....	32
2.2.4 Threat of Entry – Summary.....	33
2.3 Threat of Substitutes .....	34

2.3.1	Threat of Substitutes – Manufacturers Using In-House Processes.....	34
2.3.2	Threat of Substitutes – OEM.....	35
2.3.3	Threat of Substitutes – Outsource .....	35
2.3.4	Threat of Substitutes – Summary .....	36
2.4	Bargaining Power of Suppliers .....	38
2.4.1	Bargaining Power of Suppliers – Staff / Workers .....	38
2.4.2	Bargaining Power of Suppliers – Business Location.....	39
2.4.3	Bargaining Power of Suppliers – Finance Issues.....	39
2.4.4	Bargaining Power of Suppliers – Summary .....	40
2.5	Bargaining Power of Customers.....	42
2.5.1	Bargaining Power of Customers – Homogeneous Product.....	42
2.5.2	Bargaining Power of Customers – High Switching Costs.....	42
2.5.3	Bargaining Power of Customers – Summary .....	43
2.6	Overall Industry Attractiveness and Key Success Factors .....	44
2.6.1	Overall Key Success Factors.....	45
<b>Chapter 3: Internal Analysis .....</b>		<b>48</b>
3.1	Industry-Level Value-Chain .....	48
3.1.1	Standards Development .....	50
3.1.2	Performance Testing.....	50
3.1.3	Safety Testing.....	51
3.1.4	Certification.....	51
3.1.5	Audits.....	52
3.1.6	Quality Systems.....	52
3.1.7	Marketing .....	52
3.1.8	Sales.....	53
3.2	Typical Firm-Level Value-Chain .....	53
3.3	Primary Activities.....	55
3.3.1	Inbound Activities.....	56
3.3.2	Operations .....	56
3.3.3	Outbound Logistics .....	57
3.3.4	Marketing and Sales .....	58
3.3.5	Service.....	59
3.4	Support Activities .....	60
3.4.1	Procurement .....	60
3.4.2	Technical Development .....	60
3.4.3	Human Resource Management .....	61
3.4.4	Firm Infrastructure .....	62
3.5	Typical Firm-Level Value-Chain Summary.....	62
<b>Chapter 4: Issues.....</b>		<b>64</b>
4.1	Key Industry Issues.....	64
4.2	Branding.....	64
4.3	Globalisation .....	65
4.4	Accreditation and Technical Issues.....	66
4.5	Human Resources.....	67



4.6	Corporate Organisation and Culture.....	69
4.7	Summary.....	70
<b>Chapter 5: Recommendations.....</b>		<b>71</b>
5.1	Introduction .....	71
5.2	Branding.....	71
5.3	Globalisation .....	72
5.4	Accreditation and Technical Issues.....	74
5.5	Human Resources.....	75
5.6	Corporate Organisation and Culture.....	77
5.7	SUMMARY.....	79
<b>Chapter 6: Conclusion .....</b>		<b>80</b>
<b>Reference List.....</b>		<b>83</b>

## LIST OF FIGURES

Figure 1.1: NA Market Share.....	9
Figure 1.2 :Certification Organisation N.A. Market Growth.....	11
Figure 3.1: Industry Value Chain for Product Testing and Certification .....	49

## LIST OF TABLES

Table 1.1: Gross Revenue Reported by Firm and Percent of Operation in N.A. ....	8
Table 2.1: Porter's Five Forces Model Applied to - Compliance Engineering and Certification Industry.....	13
Table 3.1 Firm-Level Value-Chain for Typical Firm .....	54

## **GLOSSARY**

AHJ Authority Having Jurisdiction

CB Scheme Worldwide System for Conformity Testing and Certification of Electrical Equipment

Certification Organisation An firm accredited by the applicable agency to test and label submitted electrical devices.

CSA CSA International

DOC Declaration of Conformity

MOU Memorandum of Understanding

NAFTA North American Free Trade Agreement

OEM Original Equipment Manufacturer

OJEU Official Journal of the European Union

OSHA Occupational Safety Health Administration

SCC Standards Council of Canada

TUV TÜV Rheinland or TÜV SÜD Group

UL Underwriters Laboratory

## **CHAPTER 1: OVERVIEW OF NORTH AMERICAN BUSINESS ENVIRONMENT**

### **1.1 Introduction**

The industry that I will discuss in this paper is the certification industry in North America. The certification industry is a global industry that serves to facilitate manufacturers of electrical devices in demonstrating that their products meet all regulatory requirements dictated by the country where distribution is targeted. Each country has different regulations with regard to electrical devices. The certification industry is a highly regulated industry with onerous accreditation requirements for all participants. It is a behind the scenes industry that engages in business-to-business commerce.

Products ranging from household appliances to industrial machines to medical devices must adhere to mandatory safety and performance standards. Different jurisdictions take different approaches to achieving this desired goal. The two extreme certification processes are where manufacturers must submit to a government-operated laboratory and where manufacturers evaluate the product themselves and make a legal declaration of conformity. Countries such as Japan and China require all manufacturers to submit electrical products to government-operated laboratories for evaluation to unique national safety and performance testing. Europe is an example of the extreme opposite. The Official Journal of the European Union (OJEU) codifies European law regarding most

aspects of the common market including the requirements known as the New Approach Directives that manufacturers must adhere to prior to distributing electrical devices. (OJEU, 2006). For most industrial and consumer electrical products, the manufacturer is legally required to make a Declaration of Compliance (DOC) that the products meet the applicable directives. The means to support a DOC is at the discretion of the individual manufacturer.

This paper focuses on the North American industry where the practice falls half way between the two mentioned above. In North America, manufacturers of electrical devices, prior to selling, distributing or making available for sale or distribution, must submit their product to an accredited third-party certification organisation for evaluation to the applicable national standards. Throughout this paper, the term “certification organisation” is intended to refer to the various firms in a generic fashion and replaces many other terms found in the literature. The United States refers to “certification agencies”. Europe uses terms such as “competent body”. Canada makes a distinction between “certification” and “testing” organisations. The indigenous descriptions may infer certain legal status or other local nuances, and use of the generic term is only intended to create a harmonised nomenclature.

## **1.2 History**

One of the first quality regulations governing the sale of a product was the Bavarian beers laws introduced in 1516. The intent of the beer laws was remarkably similar to the intent of current electrical regulation, namely to provide

the public with protection from unscrupulous sellers and to foster consumer confidence in the market.

The original driver behind electrical appliance and device regulation in North America came from the property insurance industry in the late 1800s. Back then, insurance underwriters were comfortable with, and could actuarially accommodate, known risks such as coal-fired boilers and whale-oil lamps. When electric light was introduced and made commonplace by mass production companies such as Edison (now a part of Intertek), the insurance industry demanded that manufacturers of electrical products prove their safety and made insurance coverage conditional that their product was certified by their sponsored agencies, such as Underwriters Laboratory (UL is a leading certification organisation still today). Each country around the world has adopted similar criteria for administering the safety and certification of electrical devices. Most countries either presently or in the recent past maintained a government department or awarded exclusive franchise to some entity to oversee product safety certification.

In the last twenty years, the NAFTA trading group of nations and the European Union are two trading regions that have dismantled the old regime of state-owned and quasi-governmental bodies that formed the certification organisations and replaced it with a more market-oriented model. Certification organisations occupy various forms of ownership ranging from not-for-profit member owned to privately owned to publicly traded corporations. Each country

within North America maintains unique regulations and mandates for the certification organisations.

### **1.3 Overview of Regulatory Issues**

The regulatory framework that governs the certification industry is confusing and convoluted. British Columbia, for instance, is a typical example. The local Authority Having Jurisdiction (AHJ) headed up by the BC Safety Authority takes its direction from the provincial *Safety Standards Act*. With regard to recognising a certification organisation, the *Safety Standards Act* makes explicit reference to the federal *Standards Council of Canada Act*. The *Standards Council of Canada Act* is the legislation that empowers the Standards Council of Canada (SCC), which is in turn a quasi-governmental body that accredits certification organisations to a defined scope of consensus standards. Each certification organisation is subject to periodic audits by the SCC to prove competency to administer a particular national standard. To go full circle, it is the prerogative of the AHJ to accept (or not) any given national standard. The above footprint is substantially similar in all jurisdictions across North America.

Each country maintains a system of consensus national standards. A neutral body administers and publishes the national standards. Each national standard identifies the known risks inherent with a particular class or category of device and codifies the criteria for acceptance. Certification organisations, government officials, manufacturers, and other interested parties may participate

in standing committees that oversee and update the individual national standards. In all three countries, local Authorities Having Jurisdiction (AHJ) conducts enforcement of the regulations. An AHJ can be a provincial or state agency or fragmented further to the county or municipal level. AHJ's ultimately have the authority to recognise a product as having met the national standard or not.

Federal authorities regulate certification organisations. Below are the three bodies that regulate and accredit certification organisations in North America:

- CANADA: SCC – Standards Council of Canada (SCC, 2006)
- USA: OSHA – U.S. Department of Labor, Occupational Safety & Health Administration (OSHA, 2006)
- MEXICO: ANCE – *Asociación de Normalización y Certificación*, AC (ANCE, 2006)

A final layer of industry regulation is the trade regulation that facilitates international commerce. Canada, the United States and Mexico are all signatories to the North American Free Trade Agreement (NAFTA). NAFTA Article 905: "Use of International Standards" (NAFTA, 2006) addresses the issue of national standards inherent to each of the signatory countries. The overarching intent of the NAFTA is to eliminate trade barriers. Although safety testing and certification of electrical devices are not intended to be trade impediments, if nefariously applied, they can be very effective *de facto* non-tariff



trade barriers. If any one jurisdiction imposes arcane or otherwise nebulous restrictions on product testing, there could be an advantage created for domestic producers in that jurisdiction. NAFTA has effectively caused the monopolistic certification organisations that were entrenched in each of the signatory countries to be broken and to allow players in one country to conduct business in the others. Additionally, provisions of NAFTA created the means for new entrants to join the industry. Certification organisations that fulfil the accreditation requirements in all three jurisdictions are entitled to conduct business in all three; however, product certification must be conducted with reference to the individual national standards of each jurisdiction.

## **1.4 Main Competitors**

The certification industry in North America operates in an oligopolistic manner. Three companies maintain upwards of eighty percent of the market, and several smaller companies split up the remainder. The big three, UL, CSA and Intertek, are full-service providers, and each covers the complete scope of services for all North America, while most of the smaller ones operate in niche markets and offer only a limited scope of work. The main firms in North America are:

- Underwriter Laboratories – (UL)
- Intertek Group PLC – (Intertek)
- Canadian Standards Association – (CSA)
- TÜV Rheinland Berlin Brandenburg – (TUV-R)

- TÜV SÜD Group – (TUV-S)
- Miscellaneous smaller firms

## **1.5 North American Certification Body Market Size**

The North American certification industry market size as of 2005 was approaching one billion dollars annual revenue. Certification organisations generate revenue from two main activities: evaluating submitted products to requested national standards and conducting audits of ongoing production at manufacturers' sites. The initial evaluation is a one-time transaction and involves evaluating submitted product to the requisite test standards. Audits involve ongoing inspections and verification of a manufacturer's quality system and ensure that current production of a certified product is consistent with the representative sample originally tested. The audits form an important annuity for the certification organisations. To determine the size of the North American market and the respective market size of each firm, I have delved into the annual reports and other available documentation and extracted or extrapolated two pieces of information: total revenue and the portion of the firm's operation in North America. See the Table 1.1 below. Table 1.1 illustrated details the global size of each of the certification organisations that is doing business in North America. It contrasts the global book of business against the portion conducted in North America in pursuit of North American certification and adjusts from the reported currency units to US dollars.

**Table 1.1: Gross Revenue Reported by Firm and Percent of Operation in N.A.**

2004 Figs	CUR-RENCY	Total Firm Revenue (mil)	Converted to USD (mil)	Operation in N.A. (%)	NA Revenue (USD) (mil)
UL	USD	678	678	58%	393
Intertek	£	499	915	34%	311
CSA	C\$	180	138	75%	103
TUV R	€	125	155	10%	16
TUV S	€	150	186	10%	19
oth NA	USD	300	300	50%	150
Total			2,375		993

Source data – <http://www.csa-international.org>, <http://www.ul.com>, <http://www.intertek.com>, <http://www.de.tuv.com/en/>, <http://www.tuev-sued.de/>

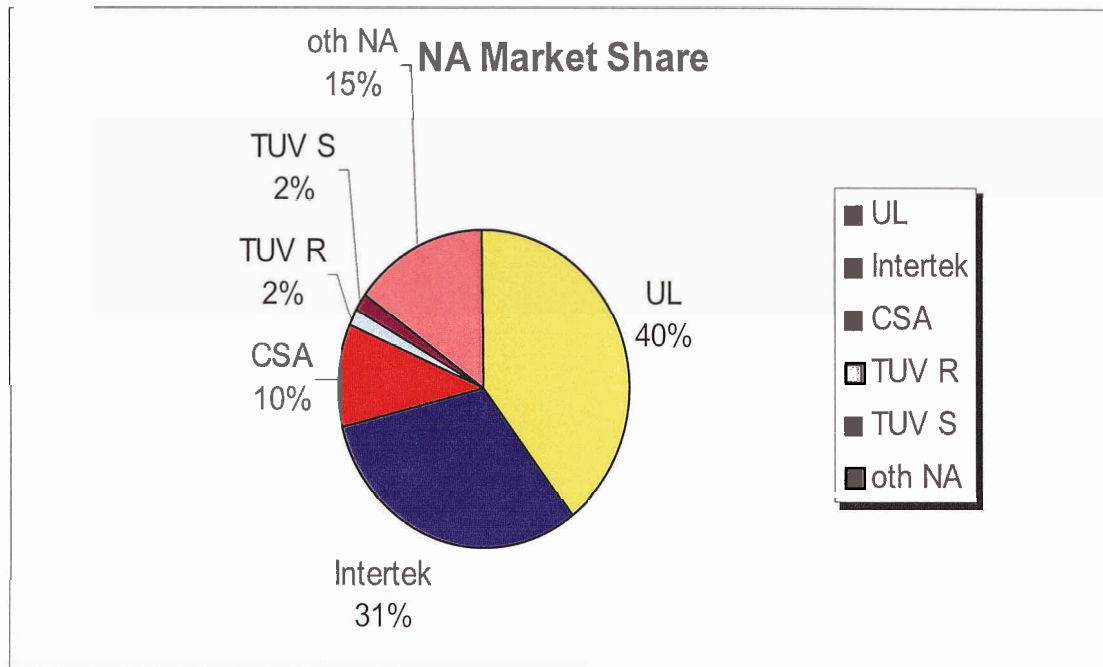
## 1.6 Products and Services

Certification organisations are technical-service providers that manufacturers use to demonstrate third-party verification that products meet the specified or applicable national standards. Along with the initial product verification, with reference to the applicable national standard, certification organisations are required to conduct periodic audits of the manufacturers to verify that current or on-going production continues to be compliant with the national standards and to support the manufacturer. An additional part of the certification organisations' service offering is to liaise with local Authorities Having Jurisdiction to confirm and support the manufacturers' product in the field.

## 1.7 Market Share

Market share for each firm was calculated by comparing only the North American portion of their respective reported revenue. Product certification is a homogeneous service; thus, top line revenue was the measure used to determine each firm's market share. See Figure 1.1 below.

Figure 1.1: NA Market Share



Source data – <http://www.csa-international.org>, <http://www.ul.com>, <http://www.intertek.com>, <http://www.de.tuv.com/en/>, <http://www.tuev-sued.de/>

## **1.8 Growth**

The Compliance Engineering and Product Certification industry is enjoying modest growth as measured by aggregate revenue of the leading firms. UL's annual report claims 9.8 percent (UL, 2006) growth, and stock analysts peg Intertek's at almost 8 percent (Intertek 2006). Growth can be attributed to both organic growth of the overall economy and to increased utilisation of the services by manufacturers introducing new product to market. The introduction of revised or new and sophisticated national standards for safety and energy efficiency verification is also a factor that drives growth. See Figure 1.2 below. Growth measured in terms of aggregate industry revenue is likely not sustainable. Changes in the manufacturing sector and resultant changes in the certification industry will conspire to preclude future growth and perhaps result in consolidation. Details are discussed in subsequent sections.

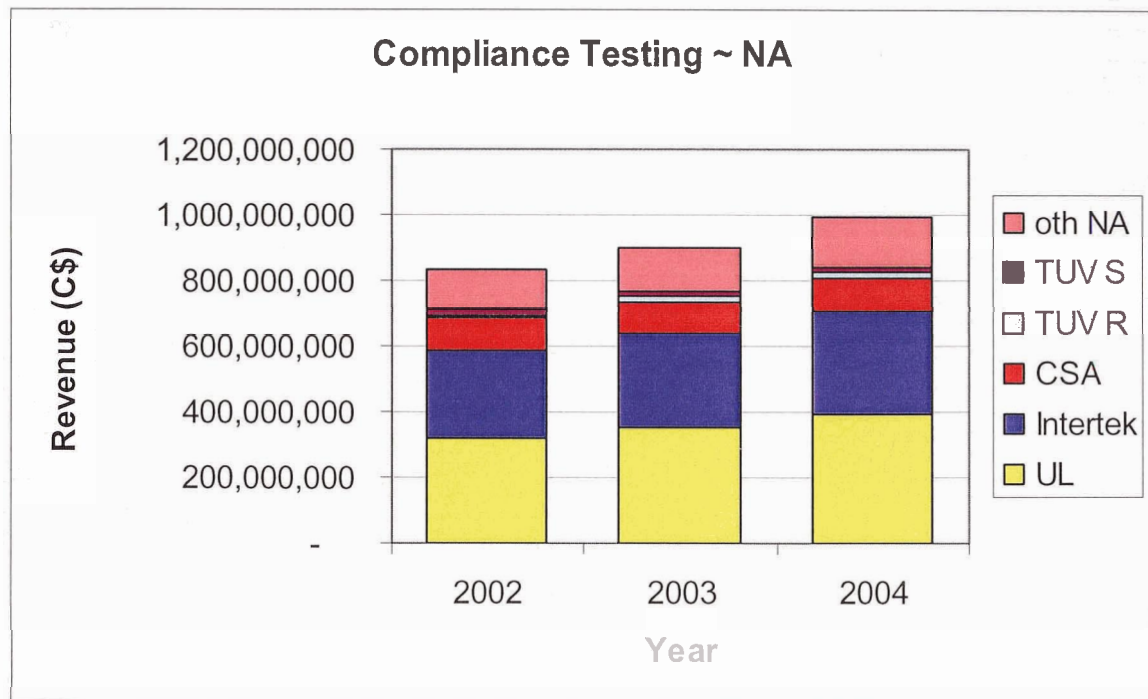
## **1.9 What are the Major Changes Expected in Technology?**

The certification industry is a business that is, in part, driven by technology and innovation. Technology and innovation are factors that cause manufacturers to introduce new products to market that require testing. Technology is also a factor on the production side of the business. As products become more sophisticated, and as test requirements become more specialised, testing firms will need to keep abreast of these advancements.

From a business logistics point of view, advances in communication technology and the associated lower costs have had a profound effect on industry in general. A contributing factor facilitating globalisation of the manufacturing sector is the

efficient, reliable and cheap flow of information. Expensive telephone and telex communications systems have been replaced by VOIP and e-mail, both of which are virtually free. Reliable and inexpensive communication, even within the North American region, has allowed certification organisations to decentralise and to move closer to manufacturers. The next chapter will discuss the forces that influence the certification industry in greater detail.

Figure 1.2 Certification Organisation N.A. Market Growth



Source data – <http://www.csa-international.org>, <http://www.ul.com>, <http://www.intertek.com>, <http://www.de.tuv.com/en/>, <http://www.tuev-sued.de/>

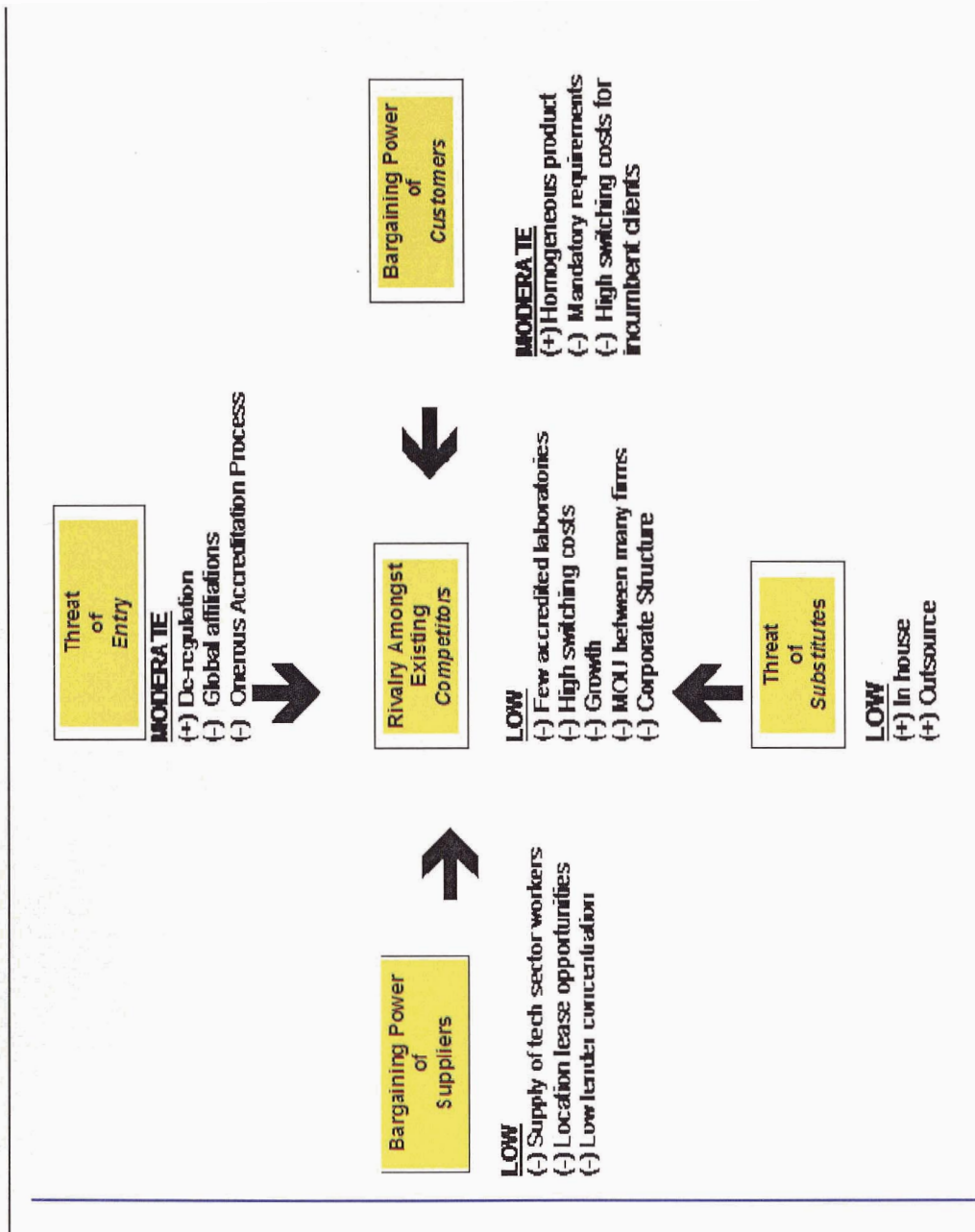
## **CHAPTER 2: INDUSTRY ANALYSIS**

Porter's five-forces model (Porter, 1979) helps evaluate the attractiveness of an industry. See Table 2.1 below. The variables, as illustrated, measure the competitive forces and are a harbinger of future profitability and attractiveness of the industry.

The five forces that drive competition within a given industry will determine, to a large part, the profitability of that industry. That is to say, both the degree of profit and economic rents that can be extracted will be limited to a certain level as determined by the co-relation of the Porter's five forces. Below, I will discuss the general implications of each factor both generally and with reference to the compliance engineering and certification industry.

This chapter will focus on a discussion of the certification industry with reference to Porter's model. Each section will discuss the different forces or variables that influence rivalry and will include a general "characterisation" and a "direction" of rivalry. Characterisation will discuss the general net effects of the various elements with the respective force and direction will reference to future trends toward greater or lesser rivalry.

Table 2.1: Porter's Five Forces Model Applied to - Compliance Engineering and Certification Industry<sup>1</sup>



Based on EMBA Strategy Seminar [EMBA 607 class notes]. Bukszar, Ed 2006 After Porter, 1979.



## **2.1 Rivalry amongst Existing Competitors**

The relationship between competing firms within an industry can be described in terms of rivalry. Rivalry amongst competitors will be determined by several factors as detailed below. The number of firms in an industry, product differentiation and the cost structure of each firm will all bear on the degree of rivalry exhibited.

### **2.1.1 Rivalry – Few Accredited Laboratories**

There are relatively few firms competing in this industry. Five firms comprise upwards of eighty-five percent of the industry. Two firms, UL and Intertek comprise over seventy percent of the industry, as indicated in Figure 1.1 on page 9. UL not only casts the longest shadow on the North American market, but it has by virtue of its history been involved in the founding of the industry and has been instrumental in creating many of the current practices and norms within the industry. Nonetheless, the deliverable of certification is a homogeneous service; it is a commodity, of sorts. While some manufacturers have preferences for working with one certification organisation over another, the process and testing behind the supporting certification is identical for any given product class and any given national standard, and the Authorities Having Jurisdiction (AHJ) recognise all accredited certification organisations equally.

The certification industry must please three masters: the primary manufacturer client, the AHJ, and other stakeholders. The client, the one that

pays the bill, is the manufacturer that submits product for evaluation and certification. The Authorities Having Jurisdiction (AHJ) is the direct authority that over sees the industry. Other stakeholders include the end user, or the consumer. Any combination o the three may drive or influence the activities of an individual certification organisation.

### **2.1.2 Rivalry – Corporate structure**

The certification organisations individually want to promote the industry and specifically favourably position their firm within it. Marketing tools used to do so include promoting brand name recognition and leveraging of a firm's reputation. The individual firms within the certification industry market and promote their services to their desired targets through channels that are appropriate and effective. For instance, reaching out to an AHJ could include participation in trade associations and industry publications. They could reach out to manufacturers by participation in trade shows and other industry specific events.

Two of the established Certification firms in North America, UL and CSA, employ a not-for-profit, member owned corporate structure. This structure along with the financial legacy accumulated by these two firms when they occupied monopoly positions within their respective markets creates opportunities for them to pursue rivalry strategies that are isolated from the immediate business

environment. Other firms may be more susceptible to the current business cycle or may have different cost structures that do not lend themselves to emulating the not-for-profits' initiatives.

### **2.1.3 Rivalry – Growth**

The certification industry has enjoyed both organic growth and a general increase in the scope and volume of business it received from the manufacturer sector in the recent past. Organic growth can include an increase measured in dollar terms from the traditional book of business resulting from either inflation or from a general increase of transactions demanded from traditional clients. New services are in addition to existing or traditional services and include items such as energy efficiency testing, environmental or materials testing or software functionality verification.

The long-term prospects for growth are limited with perhaps an imminent reduction of the real size of the industry within North America. There are two factors driving such a reduction.

First, certification firms traditionally shared clients. That is to say, at one time a manufacturer that wanted to sell product into the three countries in North America would be required to submit the product to three separate certification firms and subsequently be subject to three separate sets tests and annual audits and be liable for fees resulting from all the resultant transactions. Each certification firm was restricted to supplying certification services to the national standards of their home market. The certification organisations would share the

client, each supplying a mutually exclusive aspect of the manufacturers certification needs. Many manufacturers are now opting to use a single vendor for all certification needs. A single fully accredited certification firm can supply a manufacturer with certification services for all North American jurisdictions and while the certification must reference the national standards of each target market, the total cost will be less than if the manufacturer secured the same service from multiple vendors.

Second, a major practice many manufacturers have adopted is moving their manufacturing facilities out of North America to lower cost locations around the world. When manufacturers were located in North America, their primary market was often North America. Manufacturers relocate their businesses in a quest for lower costs, including costs associated with product certification. When certification organisations establish branch operations abroad to facilitate manufacturers' certification needs in their chosen lower cost regions, the certification organisation incurs organisational costs and capital outlay. The organisational costs are reflected in the management resources the firm must commit to support globalisation. The capital costs include the costs of physically setting up shop at an additional location. The certification firms that can best organise and accommodate manufacturers will yield the largest portion of the offshore manufacturers business intended for the North American market.

The certification organisations individually want to promote the industry and specifically favourably position their firm within it. Marketing tools used to do so include branding and leveraging of a firm's reputation.

Push - Individual certification organisations target the manufacturers with a push strategy where they will bring the manufacturer on side and the manufacturer will then promote or otherwise include the certification aspect of the product to the wholesaler and subsequently to the consumer.

Pull - Certification organisations employ a pull strategy in targeting the consumer and the AHJ. The individual certification organisations want these stakeholders to demand their proprietary brand from the manufacturers and create demand for the brand in this manner.

The individual firms within the certification industry market and promote their services to their desired targets through channels that are appropriate and effective. For instance, reaching out to an AHJ could include participation in trade associations and industry publications. They could reach manufacturers by participation in trade shows and other industry-specific events

#### **2.1.4 Rivalry – MOU between Firms**

Memorandums of Understanding (MOU) are a legacy practice that has survived from when certification organisations each occupied independent. An MOU can include a variety of components and commonly includes explicit agreement to recognise and accept bodies of work from otherwise competing firms territories and did not compete in any meaningful way. The corporate culture is somewhat idiosyncratic with respect to MOUs. Certification organisations will compete for business with all the rigor and aggressiveness that a market economy encourages. There are occasions where there is hostile and

belligerent interaction between organisations. For instance, if a manufacturer wants to move its custom to an alternate vendor, the incumbent vendor is not obliged to willingly facilitate the transaction and could very well make every attempt to frustrate it. Conversely, certification organisations also find themselves subscribing to articles of cooperation and reciprocity. MOUs are common and can be looked at as a type of strategic alliance. For example, an MOU was recently made public between UL and CSA International (CSA, 2006) (UL, 2006). The firms served notice that the two organisations will cooperate and facilitate manufacturers in achieving UL and CSA certification simultaneously, with either firm being the single point of contact.

#### **2.1.5 Rivalry – High Switching Costs**

It is difficult for manufacturers to change service providers. Certification organisations are under no obligation to recognise or otherwise accept each other's reports and other supporting documents. To switch to another organisation, the manufacturer may be required to submit product for retesting and recreate a technical dossier from ground zero.

#### **2.1.6 Rivalry – High Exit Costs**

Along with ownership of assets such as laboratories and associated test equipment, certification organisations are burdened with contractual obligations to their manufacturer clients in a manner akin to an insurance company's relationship with client base. Manufacturers enter into a certification agreement that not only involves a manufacturer's current production but also is an

agreement on the certification organisation's behalf to support or vouch for product sold or otherwise installed in the field well into the future for what is expected to be the normal serviceable life of the item. The certification organisation is expected to answer to Authorities Having Jurisdiction as to the validity of any given certification label in the field, perhaps even after the actual manufacturer ceases to exist.

### **2.1.7 Rivalry – Incumbents**

Each of the players within the North American market approaches the issue of rivalry differently, and there are different historical and financial issues that drive each organisation's behaviour. Below is a brief description of each of the main player's approach in the North American market.

Recently there has been consolidation activity within the industry. An example of one such takeover is the recent purchase of Entella Inc. by the Intertek Group. Entella was a small niche player within the certification organisation that had a narrow scope of operation. Reasons for consolidation within the industry include smaller certification organisations inability to achieve critical mass or a minimum efficient scale to be successful in the certification industry. The regulatory requirements and the cost of participating in the certification business require firms to establish a minimum efficient scale to operate and many niche players miss the mark. Conversely, with the larger firms, much of the regulatory overhead is fixed and they can expand their scope of business without any discernable incremental costs.

There likely will be no change in industry rivalry in the short term. Deregulation and consequent re-regulation as brought about by initiatives like NAFTA have consumed much of the willingness to change the system. Exit costs in isolation of other factors will promote increased rivalry for potential market share. Some of the smaller niche players may continue to combine forces or perhaps be taken over by the larger entities.

Ownership structure will affect rivalry. Firms that are unencumbered by or have different exposure to capital markets or have different sensitivity to the needs of shareholders and customers can indeed pursue different business plans than others in the industry. The not-for-profits occupy such a position.

Below is a summary of the major firms participating in the North American certification industry.

#### **UL –**

Underwriters Laboratories Inc.  
333 Pfingsten Road, Northbrook, IL 60062-2096 , USA  
5800 employees - established 1894 - 62 locations globally  
<http://www.ul.com>

UL occupies a large footprint within the North American market. In the United States, UL is a “not-for-profit”, tax-exempt corporation administered by a board of trustees. Counter intuitive to its claims to be not-for-profit, UL enjoys an annual turnover in the hundreds of millions of dollars and over the years has accumulated considerable cash and assets. UL incorporates branch offices and



satellite laboratories around the world, and many of these entities are not subject to the same not-for-profit principle and are in fact profit centres within the UL conglomerate. Within North America, UL approaches rivalry with a rather lackadaisical and indifferent attitude toward its competition in the certification industry. UL seems to be neither overly co-operative nor aggressive toward other certification organisations.

### **CSA –**

CSA International  
178 Rexdale Blvd., Toronto, Ontario M9W 1R3. CANADA  
established 1919 - 1200 Employees -  
2500 employees - 50 countries  
<http://www.csa-international.org>

Much of the above description of UL is consistent with the profile CSA casts, albeit from the Canadian perspective and in the Canadian market. CSA is a “member-owned, not-for-profit” organisation in Canada. Elsewhere it conducts business, it locally incorporates a wholly owned subsidiary. CSA and UL enjoy a symbiotic relationship that has survived into the current regulatory regime where the two organisations could otherwise engage active competition. CSA formerly was the single recognised certification organisation in Canada. UL held a similar position in the US market. CSA regularly shares a manufacturer client with UL, with CSA providing the Canadian approvals and UL the American.

## **Intertek –**

Intertek PLC  
25 Savile Row, London W1S 2ES, UK  
established 1885 (oldest division) - 15500 employees - 109 countries  
<http://www.intertek.com/>

Intertek is a British-owned certification organisation that operates subsidiaries in North America. Intertek is a collection of previously existing entities that have been collected, merged and re-branded by the parent company. The principal unit in North America was formerly Edison's ETL Laboratories. Intertek claims to be the biggest certification organisation worldwide however, its operation in North America is smaller than UL. Unlike UL, Intertek is a privately held, publicly traded, for-profit company. Since it achieved North American accreditation, Intertek has been more aggressive than the incumbents in pursuit of market share in North America and in delivering a homogenous service and has tried to differentiate itself from the established firms by emphasising service and speed.

## **TUV –**

TÜV Rheinland Berlin Brandenburg Pfalz e.V.  
TÜV Rheinland Group  
Am Grauen Stein, 51105 Köln, GERMANY  
established 1874 - 10000 employees - 50 locations  
[http://www.de.tuv.com/en/about\\_us/structure.html](http://www.de.tuv.com/en/about_us/structure.html)

&

TÜV SÜD AG

Westendstraße 199, D-80686 Munich , GERMANY  
9500 employees - established 1876 -  
<http://www.tuev-sued.de/en>

The TUVs, while bit players in North America and offer an interesting blend of corporate organisation. TUV is not-for-profit in Germany, yet within North America, it has incorporated subsidiaries with an explicit profit goal. UL and CSA utilise this same not-for-profit structure in their respective domestic markets and for profit subsidiaries in foreign branch offices. The TUVs are active within North America with a small base of operation.

### **Miscellaneous smaller firms**

There are several smaller firms participating in the certification organisation. These firms fall into two general categories, small regional operators those with a broad geographical base of business and specialised or narrow scope of operation. An example of a regional operator is a BC firm, Quality Auditing Institute (QAI). QAI provided a general range of services to industrial clients and generally within the BC region (QAI, 2006). An example of a niche player with a broad geographical base of business and a specialised offering is MET Laboratories (MET Labs, 2006). MET has a very limited scope of accreditation and specialises in evaluating and certifying medical equipment. The success of a niche player in the certification industry is dependent on the individual firm exploiting a competitive advantage whereby it can deliver value to

its manufacturer clients in a more efficient manner than other available vendors. Niche players will continue to search for rich fractions to mine however, the aggregate market share of all the small operators is a minor part of the overall industry.

### **2.1.8 Rivalry – Summary**

#### **Characterisation**

Rivalry amongst competitors must on balance be categorised as “low”. Competitors in an oligopolistic environment will look to the industry leader to set the pace, and there is little incentive to “punch above your weight”. The industry leader in United States is UL. UL has the economic power and resources to create a tariff for certification services. This tariff or rack pricing can be based on UL’s calculated cost of delivering the service or can be the result of either deliberate or unintentional cross subsidising of its offerings. In either case, UL has the economic where with all to thwart any attempts by competitors to deviate from the established rates. In a growing market, providing the general market share that is distributed between the various firms within the industry remains somewhat stable, the industry leader will continue to be the anchor. In a stagnating or declining market, the leader will use similar tactics to prevent loss of market share. All the certification organisations participate in some sort of recognition and co-operation with each other; although, it can be capricious and

arbitrarily administered. Much of that co-operation is facilitated by maintaining the current methods of accreditation and explicit MOUs between firms.

### **Direction**

Claims of whiter and brighter by manufacturers would be disingenuous because the fact remains that the certification service itself is defined by regulation and must be identical irrespective of which accredited certification organisation delivers the service. Similarly, a retailer may promote an appliance as being certified by “X”. The implication is that other appliances are either not certified or have inferior certification. The fact remains that by law all appliances are certified and certified to the same criteria. Manufacturers are legally obligated to demonstrate that their electrical products comply with the applicable national standards. Neither the certification organisations nor the AHJ would be enamoured with discussing degrees of safety. “Certification” means that the product has met the requirements of the national standard, only – no more and no less. Morbidity may be an agenda item in many closed-door meetings amongst government officials, regulators and manufacturers, but it makes for very poor public discussion.

Branding, as exercised by certification organisations, must attempt to leverage other more innocuous topics and approaches in pursuit of creating advantage and differentiation. Each player within the industry has a stake in the status quo, and while there may be some jockeying for position, for the most part rivalry in the form of branding will remain soft.

Direction of the industry will be influenced by challenges to the corporate structures enjoyed by several of the leading North American firms. Challenges may come from within the individual organisations to initiate change to create more flexibility for the firm to operate or it could originate externally from either the regulatory or the political forces in the firms home country or from abroad. Internally, management in the not-for-profit structure must verify the structure is beneficial to the organisation net of the drawbacks. Externally there could be accusations of unfair trading practices or of subsidies prohibited by mechanisms such as NAFTA or other similar mechanisms.

The key success factors with regard the certification industry's rivalry amongst existing firms include: securing and maintaining a franchise, creating and exploiting brand preference, developing a corporate culture of accommodating clients' needs and the contemporary business environment. Securing a franchise or obtaining the needed regulatory accreditation is paramount to participating in the industry. The certification industry engages in business-to-business transactions with its manufacturer clients. Branding is a harbinger of reputation and as such is an important success factor. The last rivalrous key success factor concerns an individual firm's ability to adapt to and accommodate manufacturers' desired business practices. This includes the ability to accommodate geographical challenges as well as creating compatible and complementary corporate cultures. The corporate structure employed by a firm will be an important factor in determining its internal cost structures. It will also have a significant influence on how the organisation conducts business with

its clients. A certification organisation that has incompatible cultures or no commonality with its customers will be less successful than a firm that has shared-values with the client and the general business community.

### **Competitive Analysis**

The firms within the certification industry in North America are not engaged in any meaningful competition. Several firms such as CSA and UL regularly enter into MOU's that preclude competition. The legacy of the monopoly position CSA and UL once occupied still is a part of the corporate culture of those firms. The legacy of their former market share is changing very slowly however, UL is still the dominant certification organisation in United States and CSA still holds a dominant market position in Canada. The current business environment has slowly changed. The third big player on the North American scene is Intertek. Intertek employs a more entrepreneurial approach to its business and its approach to the market and has leveraged itself into the number two position in North America overall.

Much of the competitive activity within the certification industry is driven by the business environment. Often when customers switch providers rather than it being the result of a corporate dog fight it is merely a case of manufacturers engaging in vendor arbitrage. Consumers are largely unaware of product certification requirements on electrical devices. Industrial users and retailers are indifferent to the source of the certification. Manufacturers that were formerly

regulatory bound to a particular national provider are now receptive to the notion of shopping their business around.

The competitive relationship between the three leading firms in North America remains lackadaisical and weak. This is illustrated by the five forces in Table 2.1 above. UL and CSA have large asset bases and a history of cooperation. Intertek, while in a number two position, is still the interloper without deep pockets and could be vulnerable to the senior players if they were to take umbrage to its activity.

## **2.2 Threat of Entry**

### **2.2.1 Threat of Entry – Deregulation**

The certification industry in North America enjoys a privileged franchise that is entrenched in the regulatory laws of each of the host countries. A risk inherent with this situation is that a change in regulation by any one or all of the jurisdictions could undermine the incumbents' position in the industry. If deregulation opens the playing field without qualification, many new entrants could seriously compromise the viability of the current mode of the industry. Regulation that changes the obligations or liability of the certification organisations could force each player to revisit their participation in the industry. Radical deregulation is an unlikely threat.

Re-regulation is a variation of this threat and is equally challenging. The certification industry has been petitioned by many stakeholders for standing to



participate in the industry. Many of these stakeholders are seeking changes to the regulatory obligations of firms within the certification industry but are not interested in joining the industry *per se*. Stakeholders in the form of consumer interest groups, industry, or government may seek intervener status to influence change of the mandate of the certification industry to include additional factors. An example of an outside stakeholder attempting to influence the regulations governing the certification industry is lobbying to have the national standard changed or to otherwise pressure the certification industry to include in its operation a larger role in environmental issues. Two such examples are evaluation of the use of hazardous materials in manufacturing, and verification testing of energy efficiency.

### **2.2.2 Threat of Entry – Global Affiliations**

The issue of globalisation revisits the certification industry from many directions. The source of any new entrants into the certification industry will likely come from some existing or newly formed organisation from outside North America. There are many established certification organisations with their current base of operation outside North America. Many of these organisations would have the necessary resources and abilities to qualify for North American accreditation. Another aspect of globalisation has been the manufacturing sector's move outside the continent. To service North American based manufacturers that are out sourcing physical production outside North America, the existing certification firms have found that to maintain market share in North

America, and service North American based manufacturers, they need to establish operating bases abroad in the same locations.

Globalisation also presents an opportunity for a firm to achieve economies of scale and economies of scope. A certification organisation can leverage its size and global reach to provide cost-effective solutions and capture business that would otherwise be lost to regional or niche players. An example of a certification organisation enjoying an economy of scale would be the ownership of specialised equipment such as a fire-testing furnace for testing flame-spread characteristics of an electrical enclosure. If the firm had a steady and consistent run rate, the costs of building and operating a very specialised and expensive piece of equipment could be attributed to many projects with each individual manufacturer's project accruing a relatively small portion of the total costs. Similarly, economies of scope give a certification organisation the ability to offer a larger and more diversified range of services and to do so without incurring large incremental costs. Economies of scope enjoyed by a certification organisation could include the costs and resources to maintain accreditation with any given authority. The costs to the firm and the firm's resources to provide evidence of competency and to survive an audit do not change substantially with the increase in the scope of accreditation. Conversely, a small niche player will experience much the same procedure to maintain a much smaller scope and rely on a much smaller base of business to support the required overhead. Incumbents have the power to exploit both economy of scale and economy of scope to secure their position in the industry and appear more attractive to manufacturer clients and to

create a situation that frustrates new entrants' attempts to establish similar scales.

### **2.2.3 Threat of Entry – Onerous Accreditation Process**

The existing industry is somewhat of a closed shop, yet barriers to entry are not impenetrable. If economic rents, either short term or long term, appeared attractive, a new entrant could allocate its resources to manoeuvre the regulatory obstacles and enter the industry. The incumbent players have opportunities to employ strategies to frustrate new entrants such as manipulating regulatory requirements that favour their present positions or lead to situations that they have the resources to accommodate. For instance, the incumbent players could unanimously agree to a particular internal quality system (like ISO 17025) that they have the in-house talent to implement, yet interlopers would find to be extremely onerous to comply with it.

A firm's experience and reputation within its scope of accreditation are additional intangible barriers to entry for new entrants. Experience can include the process of achieving accreditation from the regulatory bodies and the process of conducting the work itself. A firm's experience at administering and maintaining its accreditation will provide it with both credibility in attracting business and efficiency in executing it.

## **2.2.4 Threat of Entry – Summary**

### **Characterisation**

Threat of entry ranks as “moderate”. The certification industry is a highly regulated industry. In North America, there are formidable bureaucracies to navigate and extraordinary processes required to establish *bonifides* and become accredited. The investment uncertainty is, in part, a function of any individual firm’s ability to achieve economies of scale and sustainable competitive advantages that would permit profits to be consistently generated. Garnering market share that would contribute to creating economic scale is stymied by relatively high switching costs for manufacturers to change certification vendors.

### **Direction**

New entrants will find entry into the North American certification industry increasingly difficult. There was a window of opportunity with deregulation but the existing incumbents have built their firewalls. That is to say, within the existing framework of the industry, the existing firms have entrenched their positions and have consequently created a business environment that a new entrant would find difficult to penetrate. There is unlikely to be any new radical changes to the regulations that govern the certification industry and current the accreditation requirements make it difficult for a new firm to establish itself and to counteract the economies of scope and the economies of scale enjoyed by the existing players.

The key success factors with regard to the certification industry and threat of entry include the ability to manage accreditation and issues arising from changes in regulatory requirements and the ability maintain market share. Additionally, individual certification firms must make every effort to accommodate manufacturers globalisation trends.

### **2.3 Threat of Substitutes**

Threat of substitution generally describes the possibility or likelihood that customers can use alternate means to achieve the service that the industry delivers. This can be the by means of replicating the service or using another available facsimile of it if possible.

#### **2.3.1 Threat of Substitutes – Manufacturers Using In-House Processes**

Manufacturers have very limited opportunity to pursue alternate means of demonstrating that their product meets the national standards, other than using recognised and accredited certification organisations. There are provisions in North America for manufacturers to apply for limited accreditation with the same conditions and qualifications the certification organisations are obliged to meet. For a variety of reasons, perhaps including the economy of outsourcing and the risk-management implication, none has done so.

### **2.3.2 Threat of Substitutes – OEM**

Manufacturers can demand that their suppliers have product certified if their production system supports such a practice. To do so would not be a true substitute for the services of the certification industry but merely offset when and where the act of certification takes place. A manufacturer could nonetheless remove itself from directly participating in the industry.

### **2.3.3 Threat of Substitutes – Outsource**

Similar to stipulating that OEMs secure the needed certification, outsourcing is a weak strategy, and while it removes the task from the manufacturers' direct responsibility, the task nonetheless remains to be conducted somewhere within the certification industry.

Manufacturers have limited opportunities to own the certification process. There are some mechanisms for manufacturers to conduct some of the certification process in-house. Most manufacturers do not avail themselves of this procedure. The associated costs could outweigh any potential savings to the manufacturer, or there could be additional value to involving a third party. Manufacturers secure the services of the certification industry primarily because it is mandatory and the additional value they derive from the service demonstrates unbiased proof of compliance to the national standards. Such value could be in

the form of independent testimonial of the manufacturers' quality or contribution to the firms' risk management goals.

A somewhat anachronistic feature of product certification is the Scheme of the IECCE for Mutual Recognition of Test Certificates for Electrical Equipment, commonly known as the CB Scheme (IECEE, 2006). The CB Scheme is an international agreement between participating countries to facilitate trade. Sovereign governments that are signatory to the CB Scheme oblige accredited certification organisations within their jurisdiction to accept and recognise test reports and test data generated elsewhere, providing the body of work is conducted with reference to the local national standards and is presented in the prescribed CB Scheme format. The CB Scheme is an onerous task for most manufacturers and has become uncommon in North America. Use of the CB Scheme has been largely superseded by one-stop shopping whereby manufacturers consolidate their testing with a single certification organisation that has a full scope of accreditation to facilitate entry into all the desired markets.

#### **2.3.4 Threat of Substitutes – Summary**

The availability of viable substitutes for the industry will have the effect of diminishing profitability and rendering an industry as less attractive. The compliance engineering and certification industry has a silver bullet to counter this phenomenon by virtue of the fact that government mandates the services of testing and certifying products of most every category. Other than selling product

on the “grey market”, manufacturers have no alternative to submitting products to the accredited firms within the industry.

### **Characterisation**

Threat of substitutes ranks “low”. While certification is mandatory for most manufactured products, there is some variation in how a manufacturer achieves certification. The fact is that there are different margins associated with different aspects of the certification process. An astute manufacturer, or a manufacturer with considerable in-house resources, could remove parts of their business from the system or outsource them. Other possible substitutes could include forcing the original equipment manufacturer (OEM) to deliver the product certified or if possible design the product to fall outside established regulatory limits.

### **Direction**

Larger customers have the opportunity to avail themselves to conduct their own testing in house or otherwise achieve parts of their regulatory requirements in alternative ways. This is likely to be a rather isolated occurrence with minimal impact on the industry overall.

The key success factors with regard the certification industry and threat of substitutes include the ability to manage and keep abreast of industry regulatory requirements. Presently there are few viable substitutes available to



manufactures to using established certification organisations for product destined for North American.

## **2.4 Bargaining Power of Suppliers**

Similar to customer power, supplier power discusses the relationship between the industry and its supplier. The more exclusive the nature of the vendor's input the more power it will have.

### **2.4.1 Bargaining Power of Suppliers – Staff / Workers**

Labour is one of the most significant inputs into the certification industry. The labour market is generally a decentralised and uncoordinated phenomenon. As far as individual employees are suppliers to the certification industry, they have relatively weak bargaining power. The tech bubble burst several years ago and has had lasting effects on the industry. There would seem to be a large candidate pool of potential employees. However, attracting qualified people and transforming them into productive staff members is a difficult task.

The industry is out of alignment with expectations of senior management that would have the skills to conduct business in a sophisticated global environment. Lastly, certification organisations are handicapped in their approach to hiring executive talent. This is markedly more apparent in the not-for-profit players. The remuneration levels that are available on the market for comparable positions can exceed the pay scales established by certification

organisations. Unlike most of the technical positions, which become extremely specific to the certification organisations needs, managerial acumen to run multimillion dollar businesses is more universally transferable. Certification organisations, when recruiting management, either go to the market offering below premium packages or promote and train from within. The drawback from the first scenario is that the best qualified are not successfully recruited. The drawback of the second is that if an individual is promoted from within and masters the position, the firm is vulnerable to losing him or her to an outside business.

#### **2.4.2 Bargaining Power of Suppliers – Business Location**

The certification industry is service-based, and the brick and mortar that are important to many firms are not as critical to the certification industry. The certification industry has the opportunity to locate and move with relative ease. In many locations around North America, there is an abundance of industrial-zoned space available. Suppliers in the form of building and facility owners in most markets have at best “moderate” bargaining power.

#### **2.4.3 Bargaining Power of Suppliers – Finance Issues**

Two of the main firms within the certification industry in North America are not-for-profit organisations. Much of their capital needs are accommodated internally. Not-for-profit structure limits an organisation’s ability to access the capital markets and to leverage equity. The not-for-profit structure is a legacy

these firms continue to maintain irrespective of validity with regard to prevailing contemporary business and political practices. The adherence to the not-for-profit structure is more a testimony to the lethargic corporate culture that this structure contributes to perpetuate rather than a deliberate strategy employed by the firms. These firms are isolated from the price of money and the prevailing trends of the capital markets. Other firms are European owned and derive their funding from abroad. The capital market as a supplier has perhaps the same power as it would have elsewhere in the economy; however, much of the certification industry is not participating in it.

#### **2.4.4 Bargaining Power of Suppliers – Summary**

The profitability and consequential attractiveness of an industry will be greatly influenced by the bargaining power of the suppliers. The certification industry for the most part is indifferent to the source of most of its input resources. The physical plant requires some degree of specialisation, but it can be derived from rather generic stock. A building is a building. Much of the equipment is readily available from the same vendors that sell it to manufacturers or related businesses.

There is incongruence between the critical degree of importance that skilled workers hold within the certification industry and the treatment and remuneration that they are paid. If the collective technical and tacit knowledge of any one firm's staff could be quantified in terms of dollars, the sum would rival

the value of all other assets within that firm. The value attributed to staff is derived from the general labour market. The flaw being that there is not a market, *per se*, devoted to clearing transactions consisting of specialists in the certification industry

### **Characterisation**

The bargaining power of suppliers ranks “low”. The certification industry is a service-based business, and while inputs such as technical talent are specialised, generally the resources needed to do business are deemed rather ordinary and readily available.

### **Direction**

Suppliers will remain in the role they presently occupy. Changes in the industry that could change this include structural changes initiated by the firms employing a not-for-profit structure and the subsequent change to the relationships of suppliers of money and financing. Labour is a vital supplier to the certification industry.

The key success factors with regard to the certification industry and suppliers power are the ability of the individual firm’s ability to attract qualified staff and to retain staff that has demonstrated the ability to contribute and produce value.

## **2.5 Bargaining Power of Customers**

Buying power of customer describes the individual and aggregate ability of the customers to dictate the terms of engagement to the industry.

Manufacturers of electrical equipment are the certification industry's single source of customers. If there are few buyers and many sellers, the buyers will likely enjoy an advantage. When buyer concentration is low, the buyer power will remain low. This is the case in the certification industry. There are few firms offering services and a large and very diverse collection of buyers.

### **2.5.1 Bargaining Power of Customers – Homogeneous Product**

The certification industry delivers what is essentially a homogenous service. Customers should be able to exploit this factor to extract an advantage. Certification organisations try to include other features in their value proposition and their delivery of the service in an attempt to obfuscate the notion of homogeneity. Because the service is homogenous, new customers have bargaining power however, as discussed in 2.5.2 below, incumbents suffer switching costs, which diminishes their bargaining power.

### **2.5.2 Bargaining Power of Customers – High Switching Costs**

There are considerable switching costs for incumbent manufacturers to survive when changing vendors. Switching between certification organisations invites possible mandatory verification testing of product and the introduction of a new audit regime. Manufacturers have a stake in a certification organisation and

risk disrupting their production if that certification is interrupted or withdrawn. While the costs of certification are not trivial, time and production output, are more critical factors to manufacturers. New manufacturers are not encumbered with this consideration and as such will chose vendors without regard to it.

### **2.5.3 Bargaining Power of Customers – Summary**

Certification is a mandatory aspect of an electrical device manufacturer's production system. Changes in the industry do not eliminate the customers need for the service but there are choices available as to how they secure certification.

#### **Characterisation**

Bargaining power of customers must be characterised as "moderate". As discussed above, there are limited opportunities to substitute, and it is mandatory that manufacturers submit product to a certification organisation, and lastly, there are high switching costs with the industry.

#### **Direction**

The future direction of customer bargaining power will see less loyalty to existing vendors and more evaluation by customers of value and organisational fit with their vendors. The key success factors certification organisation

experience with regard to customer power is to make certification services available in an efficient and timely fashion.

The key success factors with regard to the certification industry and customer bargaining power is the certification organisations ability to accommodate their manufacturer clients' mandatory requirements in a manner that precludes the manufacturers from seeking alternate methods to achieve the goal.

## **2.6 Overall Industry Attractiveness and Key Success Factors**

The overall attractiveness of this industry is moderate. There are stable opportunities to earn profits and rents. There are some opportunities to extract extraordinary rents if changes in the business environment or changes in technology are recognised and seized upon in a timely fashion.

The regulatory protection that the industry enjoyed for many years has changed and change has contributed to a realignment of the firms within the industry and realignment of their relationship with their customers. Where once the firms within the industry mingled and shared the same clients, now there is a regulatory environment that not only precludes the previous exclusive domain each firm occupied, it has facilitated the entrance of new certification organisations.

Incumbent firms need to revisit their methods of operation and mode of corporate organisation with reference to contemporary business models. New

entrants need to entrench their place in the industry. Many smaller players need to either form alliances or find partners that share their goals and culture or risk being taken over or otherwise taken out of the game.

### **2.6.1 Overall Key Success Factors**

Firms within the certification industry in North America have demonstrated several key success factors. Each firm, by virtue of either luck or deliberate planning and positioning has executed several of the key success factors. No single firm has captured or incorporated all of them. The key success factors including a description of each are as follows.

#### **Branding**

Branding as discussed in section 2.1.7, rivalry amongst incumbents, is an important key success factor. Several firms within the North American certification industry have managed to secure a position within the industry where their brand is recognised and is an essential feature that differentiates that firm from others in the industry.

#### **Adapting to global business needs**

Globalisation is a reoccurring aspect of the key success factors and is discussed in detail in sections, 2.1.7, rivalry amongst incumbents and 2.2.4,



bargaining power of suppliers and 2.5.3, bargaining power of customers. The overarching feature that makes globalisation a key success factor is the ability of the individual firms within the North American certification industry to accommodate the manufacturers and to accommodate the changes in the overall manufacturing sector that has seen large sectors relocate around the world.

### **Accreditation and technical issues.**

The certification industry is a highly regulated business and as such, a key success factor that firms within the industry demonstrate is the ability to meet and maintain the required accreditation to participate in the industry. Sections 2.1.7, rivalry amongst incumbents and 2.2.4, bargaining power of suppliers and 2.3.4 threat of substitutes provide details. Additionally, certification organisations bring to the table a professional grasp of the regulations that manufacturers are mandated to demonstrate compliance. This factor is a key success factor that arises from the industry's regulatory environment.

### **Attracting and retaining qualified staff**

Sections 2.4.4 bargaining power of suppliers and 2.1.7 rivalry of incumbents, detail the key success factor of staffing. Firms within the industry must master this aspect of the business to remain competitive and to survive.

**Organisational structure and corporate culture that is compatible with and complementary to the manufacturer client needs and the contemporary business environment**

The last key success factor discussed here, as detailed in Section 2.1.7, is the role that organisational structure and the resultant corporate culture, plays in the viability of firms in the industry. Accommodating and complementing a client's corporate culture is critical to delivering maximum benefit and value to a client.

In short, the successful firms in the certification industry will incorporate the above key success factors and new factors as warranted when the business environment once again changes. Porter's five forces provide a framework with which each firm within the industry can be evaluated. The nature of the larger manufacturing sector makes it necessary for all certification firms to continually evaluate their operational methods with reference to the prevailing business environment.

## **CHAPTER 3: INTERNAL ANALYSIS**

### **3.1 Industry-Level Value-Chain**

The industry value chain for a typical consumer goods or industrial equipment manufacturer includes the value-creating functions that take place from the germination of an idea, to development of a product or service, to the final delivery to the end user. The certification industry plays a role in the manufacturing industry yet remains a separate entity.

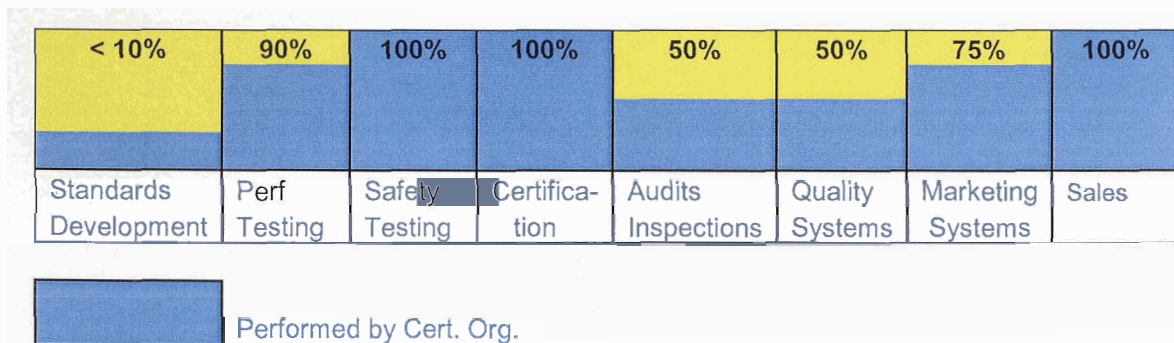
Product certification is a two-step process. First step requires a manufacturer to submit a sample that is representative of the production version of the product for evaluation with reference to the applicable national standard. The second step involves the certification organisation and the manufacturer into a covenant whereby the certification organisation will conduct unannounced periodic quality audits at the manufacturer's location to ensure the current production versions of the product are consistent with the representative samples originally submitted.

The turnaround time required will depend on the complexity of the required evaluation. Most consumer electronics and industrial goods can expect between fifteen and sixty-five days for evaluation to the national standards. Similarly, the costs involved can vary depending on the time and nature of the prescribed test. A simple device such as light fixture can be turned around in

fifteen days with total cost based on two days billing. A more sophisticated device such as a medical MRI could take upwards of sixty days, and would include many complex safety and performance tests. Costs would be based on perhaps fifteen or twenty days billing. The day rate certification organisations charge is anchored in the local cost of doing business and ranges between C\$1200 and C\$2400 per day. The costs across competitors tend to be uniform. The national standard will prescribe the testing required. In terms of hours, if two firms arrive at costs that are outside any reasonable variation, it is safe to expect that one firm or the other has a wrong or erroneous grasp of the scope of the project.

The categories below illustrate the major segments of the industry value chain for the products testing and certification industry. Figure 3.1, below illustrates a typical industry footprint within the industry.

**Figure 3.1: Industry Value Chain for Product Testing and Certification**



*Based on EMBA Strategy Seminar [EMBA 607 class notes]. Bukszar, Ed 2006*

### **3.1.1 Standards Development**

Product safety testing is guided by consensus standards that are developed by many interested parties that participate in the system to research, write, and periodically revise the criteria that manufacturers will be obligated to comply with. Much of product development is guided by the requirements and limitations that are determined by the national standards. The national standards themselves have become challenged for their applicability as well as their alleged nefarious application as non-tariff trade barriers. There is an international push to adopt harmonised standards that would facilitate the free movement of goods across international borders.

### **3.1.2 Performance Testing**

Performance testing includes both mandatory and voluntary product evaluation. Energy consumption and resilience to exposure to the elements are examples of mandatory performance testing. Comparative performance evaluation side by side with a competitor's similar product is an example of voluntary testing.

### **3.1.3 Safety Testing**

Safety testing is a mandatory regulatory requirement for most consumer and commercial products as mandated by the local Authorities Having Jurisdiction (AHJ). From marker pen caps to electrical appliances, virtually all manufactured items that are made available to the buying public are required to demonstrate compliance to the national safety standards. Manufacturers submit representative samples of their product prior to entry into the market, and a test report is rendered verifying compliance to the national standard.

### **3.1.4 Certification**

Certification is the process at the back end of the safety testing whereby an accredited agency attests to a manufacturer's product complying with the national standard as evidenced by a test report produced above. The manufacturer, in turn, promises that all future production will be consistent with the representative samples as tested and identified in the test report. Certification is supported by ongoing factory audits. Manufacturers find this process creates switching costs that to some extent lock a manufacturer into one certification vendor, thus ensuring all future business is directed to that certification organisation.

### **3.1.5 Audits**

An ongoing feature of certification is periodic audits of a manufacturer's current production. The audit verifies that the original test report is consistent with a manufacturer's current production.

### **3.1.6 Quality Systems**

Quality systems such as ISO or other recognised programs are demanded by industry, and most certification organisations provide these services. Systems audits differ from product testing insofar as they are process oriented rather than outcome orientated.

### **3.1.7 Marketing**

Marketing and promotion take the testing companies' services to the client. Marketing will engage in traditional investigation of the viability of a service and will develop applicable methods of executing. The corporate culture of many certification organisations does not embrace marketing as a valuable business function. Marketing is conducted using euphemisms such as "business development" or "new product development".

### **3.1.8 Sales**

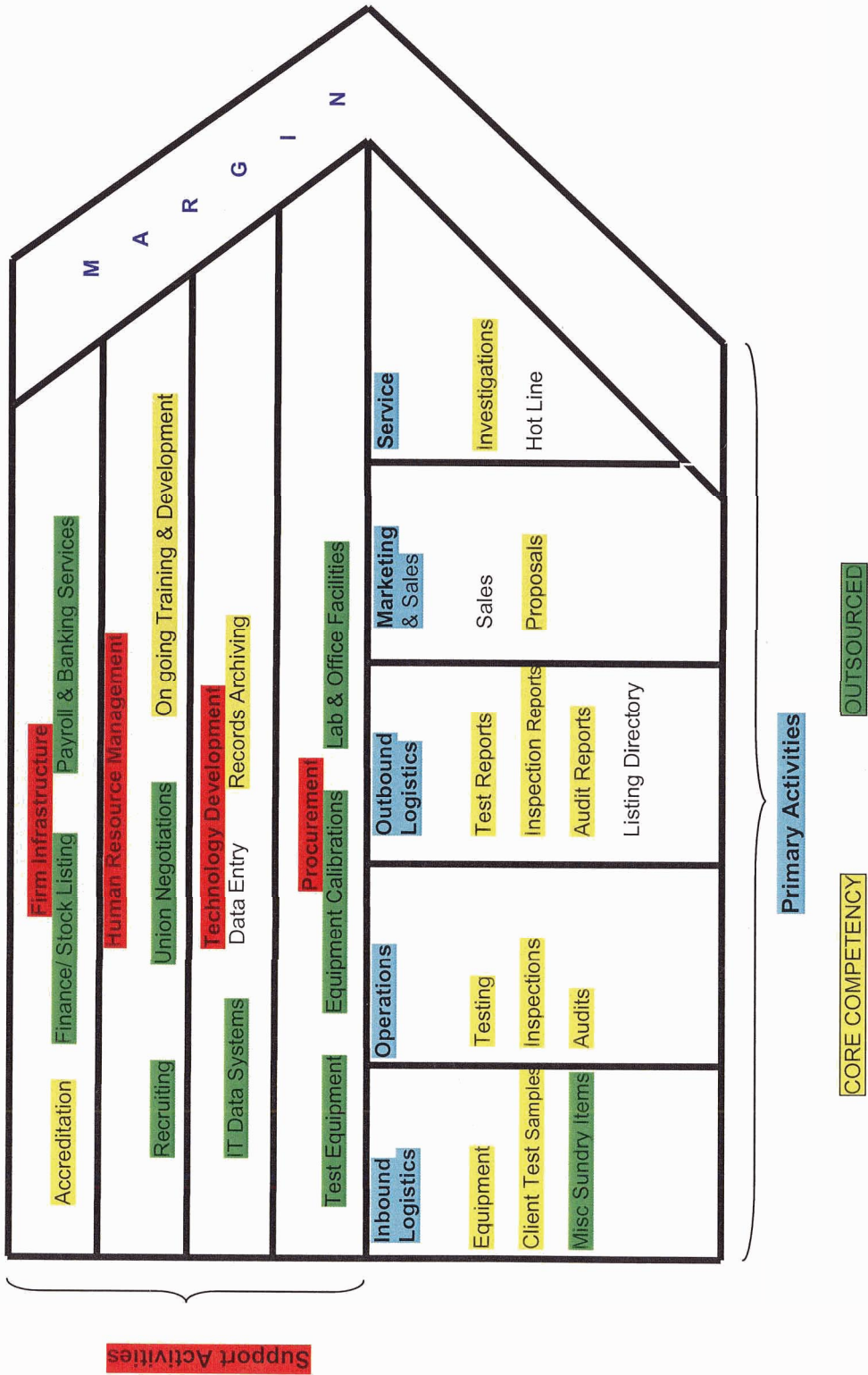
Issuing project proposals and initiating business are the key functions of a sales department. All organisations in the industry have a mechanism for facilitating commerce; although, many use a lexicon that does not include the word “sales”.

## **3.2 Typical Firm-Level Value-Chain**

The firm-level value-chain is divided into two main categories: primary activities and support activities. These are each divided into several subcategories. The interrelations between the different segments of the value chain will determine the level of overall efficiency the firm will enjoy and ultimately whether the firm will be able to enjoy economic rents over and above the average returns of its industry. Evaluation of the discrete segments of the value chain will expose opportunities to maximise firm efficiency and to develop sustainable competitive advantage.



Table 3.1 Firm-Level Value-Chain for Typical Firm



Based on EMBA Strategy Seminar [EMBA 607 class notes]. Bukszar, Ed 2006

### **3.3 Primary Activities**

Primary activities are tasks that are directly involved with the physical creation and delivery of a company's goods or services. A typical project conducted by a certification organisation involves several distinct stages. The initial part of the process involves issuing a proposal to the client. The proposal will achieve a number of things. It will contain the service offering but will also be the first step in the certification organisation's internal quality system. The issuance of a proposal will confirm that the requested work is within the firm's scope of accreditation. It will also confirm whether the firm is willing to engage in business with the applicant. For the next step, should the project go forward, the submitting client will provide representative samples for evaluation with reference to the requested national standard. The testing will result in a technical report. If the product is compliant with the national standards, the opportunity to certify ongoing production is extended to the client by the certification organization. Certification includes periodic inspections and audits of the manufacturer's ongoing production.

Primary activities with reference to Table 3.1 above are divided into several subcategories as described below.

### **3.3.1 Inbound Activities**

The inbound logistics of a traditional manufacturer would focus on the raw materials and warehousing inventory. A certification organisation's inbound logistics would be limited to receiving manufacturer's product for testing and arranging for the testing. The manufacturer's representative samples and prototypes are initially catalogued and stored. The types of samples tested range from small electrical appliances to large machinery. The initial process involved in sample testing includes photographs, drawings and general construction evaluation and verification of the product. The next step could include environmental conditioning and then subsequent testing. The samples are then either destroyed or returned to the submitter.

A key success factor is the proper handling of samples and document control. If a sample fails test criteria, it must be clear that failure was not due to any mishandling or poor documentation by the testing organization.

### **3.3.2 Operations**

Certification organisations aim to achieve both technical correctness and organisational efficiency. Depending on the nature of the project, there may be some basic testing involved, or there may be long-term performance verification.

Along with testing client-submitted products to the requested regime, projects might include inspections and audit services. Product evaluations often include destructive testing. Inspections and audits differ from testing in so far as

all the work is conducted at the manufacturer's site. Inspections are often merely the act of verifying that submitted items are consistent with a pre-existing technical report. It is a "look at the pictures" and "check the boxes" evaluation of the product without and actual testing or other physical verification. Audits can include product inspection and often involve verifying not only product compliance to a pre-existing criteria but verification that quality system procedures comply with pre-existing criteria. The task involves determining if a current production of a product is consistent with the report that was generated either by the certification organisation in a testing program or by some third party.

A key success factor is the organization's ability to follow procedures consistently and accurately. Highly qualified and well-trained staff in technical and regulatory areas are critical.

### **3.3.3 Outbound Logistics**

Outbound logistics include several tasks as detailed in the table above. Typically, a project manager will lead a team within the organisation to execute this task. Teams can be permanent assemblies that execute routine tasks on a repetitive basis or they can be specially assembled collections of talent to tackle irregular or complex non-routine tasks as required.

The final product is a test report or findings letter describing the outcome of a testing program or audit. The presentation of these documents is the "deliverable" that constitutes the billable portion of the scope of work. The

importance of these documents being technically correct is essential. Various accrediting bodies audit each certification organisation's performance. The regulatory bodies and the accreditation bodies will require the certification organisation to maintain internal quality systems to ensure the details of the accreditation are met. Typically, there are annual on-site audits where the certification organisation must prove the processes, equipment and technical abilities of the staff all are in compliance with the conditions of accreditation.

A key success factor is the organisation's ability to produce accurate, quality-assured and reliable documentation that can withstand scrutiny at the regulatory level. To this end, highly qualified and well trained staff in technical, regulatory and communications areas are critical. Moreover, all tasks must be performed in a timely fashion, to honour contractual commitments.

### **3.3.4 Marketing and Sales**

Each certification organisation engages in sales and marketing its services. The nature of the manufacturer's business is that it develops new products and brings them to market within some sort of cycle as dictated by their particular individual sectors. The certification industry must accommodate many different client business cycles and do so in a manner that supports and promotes its own operational efficiency and organisational viability. Marketing and sales in the certification industry include all the traditional aspects of the vocation with the additional task of being the first gatekeeper to the certification

organisation. Marketing will purposely measure an industry's needs to determine if a firm has the resources to deliver the desired services. The sales department will actively solicit business and determine if each transaction meets the preliminary requirements of the firm's quality system.

One of the key success factors in these firms is the ability of the sales and marketing department to attract new customers and keep existing customers satisfied. This is often achieved by ensuring sales staff are qualified with an understanding of the technical nature of the work. In this way, sales staff do not commit services that are not feasible or bring in contracts that compromise efficient operations.

### **3.3.5 Service**

Service is associated with the ongoing support that the client and other interested parties receive. This includes confirmation services or a "hotline" service and providing investigations when requested by the Authorities Having Jurisdiction.

The key success factor is to hire highly qualified and well-trained staff in technical, regulatory and communications areas.

### **3.4 Support Activities**

Support activities include functions within the firm that are not directly involved in production of the firm's goods or services. These overhead functions are necessary to the operation of the firm, and if they are conducted efficiently will contribute to the firm's overall profitability.

#### **3.4.1 Procurement**

While there is some value to securing the best pricing on input such as office supplies and facilities, these items account for a very small portion of the overhead.

#### **3.4.2 Technical Development**

Technical development has two unique outlets within a typical firm's operation. First, the nature of the work itself exposes the certification organisation to innovative technology and demands that technical staff be conversant with all aspects of it. Changing national standards, along with new product, combined with new testing methods and equipment, drive the business toward new methods and that include new technology. Second, from within the firm, the firm must adapt and keep abreast of current business practices, IT developments and commercial expectations. A chief engineer will head a knowledge management hierarchy within the certification industry. The chief engineer will delegate detailed technical tasks to team leaders. Deliberate

redundancies will safe guard against errors and will be the foundation for succession planning and ensure the firm retained the knowledge and skills needed to function.

A key success factor is keeping all personnel conversant with current technical advances and regulatory changes.

### **3.4.3 Human Resource Management**

The specialised and technical nature of the business creates extraordinary difficulties in recruiting and filling positions. A typical firm maintains an in-house training program for most staff. While established technical schools provide general instruction, the certification industry requires specialised training with reference to the specialised nature of the task of product testing. All firms within the certification industry employ either in-house training or use specialised consultants. The recruitment and retention of staff are critical tasks within the certification industry. There are many systemic problems within the industry, and at the root of most of them is the perennial task of staffing.

There are two key success factors. The first is to attract highly qualified technical, regulatory and communications staff. The second is to retain the staff because the cost and time to hire and train new staff can make operations inefficient.



#### **3.4.4 Firm Infrastructure**

Firm infrastructure includes functions such as licensing and accreditation to engage in the chosen business. The foundation of the business relies on securing the franchises that different regulatory authorities and governments around the world grant. Proving credentials, maintaining regulatory compliance and earning the trust of the business community are vital to the ongoing success of the business. Enjoying and exploiting economic rents from these valuable credentials is how this aspect of the business contributes to the firm's margins. The ownership and capitalisation of firms within the certification industry is not uniform across the industry. Corporate governorship and strategic planning are functions that are impaired by weak structures.

A key success factor is to have an organisational structure and corporate culture that is compatible and complementary to the manufacturer client needs and the contemporary business environment.

### **3.5 Typical Firm-Level Value-Chain Summary**

The certification industry value chain can be summarised as follows. The primary activities that contribute to key success factors include the evaluation and reporting of data with reference to the national standards. These form the unique factors that firms within the industry deliver and consequently convey value to the manufacturer clients. The sequence of events includes application

of core competency throughout the process. The key success factors that were identified at the firm-level value-chain analysis areas follows.

### **Attracting and retaining qualified staff**

Sections 3.3.1 to 3.3.5, 3.4.2 and 3.4.3 detail the key success factor of staffing. Firms within the industry must master this aspect of the business to remain competitive and to survive.

### **Organisational structure and corporate culture that is compatible with and complementary to, the manufacturer client needs and the contemporary business environment**

The last key success factor discussed here as detailed in Section 3.4.4 is the role that organisation structure and the resultant corporate culture plays in the viability of firms in the industry. Accommodating and complementing a client's corporate culture is critical to delivering maximum benefit and value to a client.

## **CHAPTER 4: ISSUES**

### **4.1 Key Industry Issues**

The key industry issues arise from an organisation's ineffective application of the key success factors as identified in the above industry analysis in Section 2.6.1 and firm-level value-chain analysis in Section 3.5. These key success factors are reiterated here:

- Branding
- Globalisation: adapting to global business needs
- Accreditation and technical issues.
- Human resources: attracting and retaining qualified staff
- Organisational structure and corporate culture that is compatible and complementary to the manufacturer client needs and the contemporary business environment

### **4.2 Branding**

The issue is that branding has been poorly executed. Spending and other allocations of resources by the larger organisations within the North American certification industry has been disproportionate to the results. There has been an ill-defined approach to the goals to consolidating or growing market position by use of branding. The efforts are targeted at product end users and not the actual

manufacturers however, the industry is based on business-to-business commerce

### **4.3 Globalisation**

Globalisation presents the greatest single challenge to the operation of certification organisations. Two aspects of the issue that have taxed the certification industry are as follows.

First, many manufacturers market their output to multiple national markets and the manufacturer's base of operation is consequently located outside some or all of those markets. When such a manufacturer approaches its product certification needs, it must either engage with several different certification organisations or use one organisation that has the accreditation and capabilities to do the job. The downside to using several different organisations is that the task becomes repetitive time consuming and expensive. Time and resources are expended inefficiently. A possible downside to using a certification organisation that is operating away from its home turf is that its operational efficiencies may be compromised and its technical capabilities exceeded.

The second manufacturing practice that has become common is relocation overseas. Certification organisations accustomed to conducting business in one jurisdiction now must accommodate clients' demands to accommodate multiple locations.

The resulting dilemma is that manufacturers are demanding that their desired production system be accommodated by the certification industry, but the

certification industry is anchored in a regulatory regime and in established business practices that were designed to facilitate the traditional manufacturing model. The certification industries' quality systems and cost structures are not necessarily scalable to accommodate the new business model.

#### **4.4 Accreditation and Technical Issues**

The certification industry is constantly challenged to keep abreast of new and innovative technology. It is incumbent upon the certification industry to be able to accommodate any and all aspects of new product that manufacturers may introduce. A dilemma that can be created is that the existing national standards do not fit the new products or there are hazards present that were not anticipated by the original national standards.

Two examples of technology getting ahead of the national standards are fuel-cell innovation and computer software functions. In the case of fuel-cell development the fact is that there are unique features of a fuel cell that can not be classified by existing national standards. It is neither fish nor fowl. The other example involves the advanced functionality that software is being applied to. Such an application would be the replacement of a "dead-man" switch, on a piece of industrial equipment, with a software function. The dead-man switch is a physical interlock device that when manually moved will disconnect power to the device. Software may have an electrical-load sensor or light-beam sensor that if

broken activates a shut-down sequence within the equipment controller. Such a system would make software performance and reliability a critical feature.

Certification organisations increasingly need to be able to accommodate basic and increasingly sophisticated technology that is being introduced and utilised.

## **4.5 Human Resources**

Staffing and human resource management is a key success factor. The issue is that firms within the industry operate with ineffective and unsustainable approaches. The certification industry can be crudely categorised into two groups of employees: technical and administrative.

Technical staff – A prerequisite for technical staff in the certification industry is to be able to absorb and internalise large volumes of information, to accommodate changes in technology, and to be able to keep pace with the rapid rate of change. Technology has changed simultaneously in several directions. The main players in the certification industry in North America each tripled their needed base of knowledge by each expanding into all three jurisdictions in North America. The technical requirements of the individual national standards are often similar, but they are rarely harmonised. Another challenge for the technical staff is the change in the technical nature of the product that manufacturers submit. In some cases they need to accommodate corresponding changes in the way of complex and sophisticated testing requirements. The final hurdles for

technical staff to clear are the changes in the mechanics of doing the job. A simple example is comparing the different processes associated with manual drafting and computer assisted drawing (CAD). Both activities contribute to the same resultant output—a technical drawing. Neither activity shares any common skills required to execute the task.

Administrative staff – Within the certification industry, any activity that is not operational or directly technical in nature defaults to being classified administrative. Basic administrative functions such as clerical and data processing are indispensable to the industry. The basic administrative positions have not survived without some transitions, but this paper will focus on the challenges that administrative positions in management and the “C” suite have endured. As the individual firms within the North American certification industry expanded their base of operation from only national or regional to multinational, a commensurate expansion of the skills and abilities of the firms’ leadership was required. Management is not necessarily a scalable function. For example, a finance manager that formerly was responsible for business conducted in one currency and subject to the vagaries of a single money market would need to do things differently if exposed to three currencies, three interest rates policies, and three tax regimes. Lastly, certification organisations are handicapped in their approach to hiring executive talent. This is markedly more apparent in the not-for-profit players. The remuneration levels that are available on the market for comparable positions can exceed the pay scales established by certification organisations. Unlike most of the technical positions, which become extremely

specific to the certification organisation needs, managerial acumen to run multimillion dollar businesses is more universally transferable. Certification organisations, when recruiting management, either go to the market offering below premium packages or promote and train from within. The drawback from the first scenario is that the best qualified are not successfully recruited. The drawback of the second is that if an individual is promoted from within and masters the position, the firm is vulnerable to losing him or her to an outside business.

#### **4.6 Corporate Organisation and Culture**

The individual certification organisations in North America have an assortment of corporate organisation and systems of ownership and accompanying corporate cultures. Current political and economic thinking has caused many not-for-profits and similar organisations to have their status challenged. Challenges have originated both from within and from outside the organisations themselves. Many of the limitations and restrictions created by a not-for-profit business format are self-imposed and a matter of an individual firm's internal policies and desired practices; however, these practices make the not-for-profits vulnerable to external review and perhaps review instigated from outside their home jurisdiction. For example, the softwood lumber industry in Canada was subject to accusations of subsidies initiated by disgruntled competitors thousands of miles away who exploited mechanisms found in NAFTA to further their cause.



## **4.7 Summary**

The issues for this industry have been discussed from the perspective of the key success factors identified in Chapters 2 and 3 above. Even the lead organisations have not capitalized on all of the key success factors. The next chapter will identify future trends and address what improvements need to be made to ensure growth and sustainability within the industry.

## **CHAPTER 5: RECOMMENDATIONS**

### **5.1 Introduction**

The electrical certification industry has experienced tremendous changes in the last twenty years—perhaps half of that time contemplating change and the other half roving toward some unknown destination. Building on the discussion of industry issues in Chapter 4, this chapter discusses the issues and makes recommendations with respect to anticipated future trends of the industry.

### **5.2 Branding**

Branding is a marketing function. Certification organisations have a cultural predisposition to things technical. Marketing in general and initiatives like branding specifically are not considered essential corporate activities and are largely precluded or assigned low priority.

Individual firms must approach branding with the goal of promoting and enhancing the individual firm and in do so in a manner that is consistent with the overarching goals of the industry. Branding, as exercised by certification organisations, must attempt to leverage topics and approaches in pursuit of creating advantage and differentiation.

Certification organisations individually must invest and implement contemporary marketing concepts into their business practices. Failure to do so

will result in an irreconcilable gap between the needs and expectations of their clients and the chosen service offering of the firm. Failure will provide competing certification firms an opportunity to close the gap and create a competitive advantage.

### **5.3 Globalisation**

There is every indication that manufacturers' appetite for globalisation will continue. Certification organisations need to place themselves in the forefront of this development and not be content to follow the lead of other sectors. Businesses are moving around the world looking for new margins and in doing so, all their production methods and costs of doing business are being re-evaluated. Although certification organisations are important vendors to the manufacturing sector, their service is still subject to scrutiny and challenge by their clients.

For example, if an individual certification firm certifies product to North American standards and should that client manufacturer move any or all of its operations overseas, the certification firm will need to find an efficient way to serve the client's needs or lose the business. To this end, certification organisations need to expand the reach of their operations globally to ensure consistent and reliable one-stop service for its clients. As certification firms locate branch offices outside North America, they will need to follow suit with the

manufacturers' goal and seek competitive advantage by means of lower costs of doing business.

Certification organisations need to align their operations with the interests of their client manufacturers. This means that each certification firm must develop the means to deliver the services demanded by manufacturers and do so in a competitive and efficient manner. Certification firms need to be innovative and explore all options possible to achieve this goal. In addition to going global, solutions could include engaging in strategic alliances, partnerships, mergers with other certification firms.

Failure to accommodate client global needs will cause individual firms to lose relevance. Rivalry between certification organisations can only be based on service delivery and delivery of services to new geographically areas could be the source of future increased rivalry. An individual firm's failure could be another firm's opportunity to expand its market share by providing better service.

Failure of the industry to meet manufacturers' demands will force manufacturers to seek and lobby for alternative means to demonstrate compliance to respective national standards. Certification organisations must protect their franchise and to thwart attempts by their manufacturer clients from doing an end-run and lobbying the accreditation bodies and the local Authorities Having Jurisdiction to accept other modes of product certification such as a manufacturers self declaration as is the practice in Europe.

## **5.4 Accreditation and Technical Issues**

Accreditation is the regulatory resource that the certification industry is selling. All firms within the industry must individually safe guard their accreditation with the same diligence and determination that any valuable asset would be afforded. Unlike locking something in a vault, protecting accreditation requires executing services with ongoing competency, integrity and generating supporting documentation. Accreditation is interwoven with the technical capabilities of the firm and as such is included in comments about technical issues.

The certification industry needs to make technology a source of controllable and reliable growth. Similar to globalisation, manufacturers do not invest in new technology for the sake of technology; they do so with the expectation that it will be a source of economic enrichment. Coupled with this is the complementary drive to reduce costs. Manufacturers will not want to lose this margin to certification firms that refuse to innovate or otherwise adopt current technology.

The certification industry must take inventory of its stock in trade the same as any other business. Accreditation and technical expertise are two items of stock that are the foundation of the industries service offering. Firms must raise their level of play and adopt technical innovation and contemporary practices to sustain their competitive viability.

## 5.5 Human Resources

The certification industry must come to grips with two phenomena that are occurring around it. First, it needs to appreciate that its business has become markedly more sophisticated and geographically broader based and therefore the skills required by executives must be commensurately more advanced. Second, hiring and training practices as done in the past are not necessarily valid in today's business environment.

With reference to the first item above, certification organisations take new hires with general knowledge and by means of expensive and intensive training transform the individuals into specialised and productive staff members. Here lies the staffing and recruiting conundrum that certification organisations face. All new hires require substantial specialised training prior to becoming proficient and productive staff members. However, once fully trained they become attractive recruiting targets for manufacturers that want in-house compliance talent or for other certification organisations.

Certification firms must develop the means to forecast for current and future staffing needs. Hiring and succession planning must be an ongoing activity and not left to ad hoc or incremental steps in reaction to external events. Individual firms within the industry need to accommodate not only the skills that existing positions require but to recruit and train for the demands of the future as forecasted. The investment in terms of time and resources to bring on an employee and train him or her in the unique methods of the business has to be treated the same as any company investment. Firms within the industry need to

accommodate their unique industry features into their training including cross training that will provide marketing and administrative insight to the technical staff and an thorough understanding of the technical aspects of the business to the marketing and management employees.

With reference the second item above, the certification industry needs to recruit or promote from within a more sophisticated calibre of employee that is capable to work successfully in a multi-national, multi-cultural business environment. The manufacturing sector has signalled that it expects the certification industry to accommodate their expansion to new production locations. Since the certification industry is responding to and not initiating global expansion, the challenge is in anticipating client needs from a somewhat veiled perspective. Possible HR considerations would include hiring staff conversant in several languages and familiar with global operations.

The two above issues have the common element in that the certification firms must find and use technical and executive talent that has the skills to contribute in the competitive and global business environment. There has to be a method to forecast and quantify the future HR needs of the industry and to be proactive in setting goals. Former hiring and promotion practices that were developed to support the individual firms when they operated in protected single location markets will not yield the needed results in the current or future business environment. Individual firms within the certification industry must redefine the scope of many key positions including a re-evaluation of the expectations and compensation these positions will demand. C level executives need to

demonstrate the ability to function in a sophisticated international organisation. Individuals that are promoted from within must be seconded throughout the organisation to ensure a thorough grasp of all elements of the business are entrenched. External hires carry an additional burden of proving that outside experience is relevant and compatible with the needs and desired corporate culture of the certification organisation. Executive motivation must be based on competitive salaries based with reference to similar positions in other multi-national organisations and performance bonuses payable for achieving company targets.

## **5.6 Corporate Organisation and Culture**

Further to above, there is an overarching need to create an organisational structure and corporate culture that will be an effective medium to facilitate ongoing commerce in the current business environment. The manufacturing industry and the various regulators are not necessarily interested in subsidising or otherwise facilitating the certification industry in reinventing itself. The prevailing political and business in culture North America is unsympathetic to any industry or company that will impede trade or that wants to institutionalise some sort of subsidy or non-market based advantage for itself. The certification industry needs to be aware that if it does not govern itself accordingly, a multitude of stakeholders or nefarious opposing forces will step in and create a new agenda.



With regard to not-for profit corporate structure, Katsiolouides observes that not-for profit is well suited to organisations such as local chambers of commerce, charities and the boy scouts (Katsiolouides, 2002). A corporate structure best suited for the boy scouts is not necessarily the same structure to best accommodate a multi-national multi-million dollar a year business. The certification industry in North America is procedurally tied to the dictates of the regulatory regime however, the way each firm delivers services is largely governed by the market. An organisationally inefficient corporate structure or an aloof corporate culture is not sustainable. Fostering an effectual corporate culture within a single market and single jurisdiction is a difficult task. To parley or expand it to accommodate international dimensions will exponentially increase the complexity of the task. With reference to executive talent mentioned above, a key leadership issue to be addressed by senior managers is to establish and promote the desired corporate culture consistently across the organisation. A key success factor firms must implement is to foster a structure and culture that is compatible and complementary with that of their customers.

Firms within the certification industry need to address the physical aspects of client demands and the cultural aspects too. Firms need to have with their corporate culture tuned to include contemporary and industry specific needs. The certification industry and the individual players within it need to create a mechanism to forecast their future within the larger manufacturing sector and to prevent becoming irrelevant. The desired corporate culture will include both the

ability for a firm to support the needs of the client as well as the ability to function in the larger global business environment.

## **5.7 SUMMARY**

Some firms within the current certification industry are successfully applying some of the above recommended practices. However, no one firm within the industry is incorporating all of the practices or even a collection of them that would demonstrate a clear and focused approach in response to today's evolving market.

Each variable above can not be evaluated in isolation to the others. There is interdependence between each issue discussed. For instance, corporate structure will influence corporate culture. Corporate culture will be a driver behind hiring and compensation practices. The quality of talent recruited will influence the effective execution of business. This evolving and dynamic interdependence must be a consideration when any single variable is revised.

Each firm within the industry must reconcile their current business practices with the current demands of the market and will make changes to their organisation in doing so. Changes made without full consideration of the relationships within the several disciplines discussed will create unintentional consequences that could be deleterious to that firm.

## CHAPTER 6: CONCLUSION

The electrical certification industry in North America has undergone several changes, some simultaneous and some with differing impacts on the industry. The following analogy draws parallels between an actual testing procedure and the issues and key success factors of the industry itself.

Electro Magnetic Compatibility testing (EMC) measures the undesired radio waves emitted during the operation of most electrical devices. EMC testing presents three hurdles for a technician to clear. First, a difficult aspect of measuring EMC is eliminating or at least identifying ambient electromagnetic fields or “noise” from sources peripheral to the device being evaluated. Incorrectly eliminating or identifying noise will result in incorrect measurement. The second problem inherent is in analyzing the test measurements and data, and attributing causality to the result. The test measurements will indicate the correct direction required to effect change. Incorrect data could be offset by compensating errors, or serendipity could intervene and assist in the correct direction being followed. More likely, incorrect measurement will contribute to wrong solutions. Lastly, the “C” in EMC is for compatibility. A device must be compatible with the environment it is intended to be used in. Morbidity and risk-benefit policies are debated and created to establish what is deemed degrees of acceptable compatibility. A basic pass/fail criterion for an electrical device is that the device must fail in a safe manner if exposed to undesired electromagnetic

fields and should not intentionally produce undesirable radio waves itself. For example, the controls in an elevator are allowed to fail if subjected to unacceptable and undesired levels of EMC. An acceptable failure would have the elevator car stuck between floors. An unacceptable failure would result in a freefall to the basement.

This illustrates the current state of affairs in the North American certification industry. As with EMC evaluations, measuring the pulse of the industry of individual organisations is difficult. Unintended noise emitting could be from sources in the general business environment. Noise created by stakeholders may be intentionally or unintentionally deleterious to the task of operating the firm. Lastly, determining causality of the noise is problematic. If causality is wrongly determined, by either using incorrect data or by measuring incorrect aspects of the industry, management's attention and the company's resources will be misdirected.

The certification industry must benchmark the "C" (compatibility) in terms of the contemporary, and needless to say, complex business environment. That means that the certification industry, in general, and the individual certification organisations, specifically, must provide meaningful and insightful proof to the stakeholders that their participation in the industry is valuable and relevant. Incremental and pragmatic responses to the evolution of the business environment have delivered the industry to its present location. Strategic planning could include discussion of all possible outcomes including divesting of incompatible business practices and anachronistic corporate structures and their

accompanying corporate cultures. If the North American certification industry is going to survive and prosper in the current global economy, and the next “new economy”, it must implement the key success factors identify in this paper. It must then continue to validate them and update them with reference to conducting business within the contemporary framework.

## REFERENCE LIST

- Aaker, David A. (2001), *Developing Business Strategies*, New York: John Wiley & Sons, Inc.
- ANCE (2006) – <http://www.ance.org.mx/ie/opint/index-i.asp> [Accessed 2006 June 29]
- Baye, Michael (2003), *Managerial Economics and Business Strategy*, Boston: McGraw Hill.
- CSA International (2006) – <http://www.csa-international.org> [Accessed 2006 June 20]
- Bukszar, Ed, (2006) SFU BUS 607 - Adapted from class notes
- Harvard Business Review on Brand Management (1994)
- IECEE – Worldwide System for Conformity Testing and Certification of Electrical Equipment (IECEE) – (2006) <http://www.iecee.org/cbscheme/pdf/IECEE01.pdf> [Accessed 2006 June 29]
- Intertek PLC (2006) – <http://www.intertek.com/> [Accessed 2006 June 29]
- Katsioloudes, Marios I., (2002), *Global Strategic Planning: Cultural Perspectives for Profit and Nonprofit Organizations*. Boston: Butterworth Heinemann.
- Kotler, Philip (2003), *Marketing Management*, New Jersey, Prentice Hall.
- Met Laboratories Inc. (2006) – <http://www.metlabs.com/> [Accessed 2006 July 28]
- NAFTA – <http://maeci.gc.ca/trade/nafta-alena/agree-en.asp> [Accessed 2006 June 29]
- NAFTA – <http://maeci.gc.ca/trade/nafta-alena/agree-en.asp> [Accessed 2006 June 29]

OJEU: Official Journal of the European Union, (2006) – <http://europa.eu.int/eur-lex/lex/JOIndex.do?ihmlang=en>, [Accessed 2006 June 29]

OSHA (2006) – <http://www.osha.gov/> [Accessed 2006 June 29]

Porter, M.E. (1979). *How competitive forces shape strategy*. Harvard Business Review, 57 (Mar-Apr): 137 - 145

Quality Auditing Institute (2006) – <http://www.qai.org/> [Accessed 2006 July 28]

Sanchez, Ron and Heene, Aimé (2004), *The New Strategic Management*, New York: John Wiley and Sons, Inc.

SCC – Standards Council of Canada (2006) – <http://www.scc.ca/> [Accessed 2006 June 29]

TÜV Rheinland Berlin Brandenburg Pfalz e.V. TÜV Rheinland Group (2006) – <http://www.de.tuv.com/en/> [Accessed 2006 June 20]

TÜV Süddeutschland Holding AG (2006) – <http://www.tuev-sued.de/> [Accessed 2006 June 20]

UL – Underwriters Laboratories Inc. (2006) – <http://www.ul.com> [Accessed 2006 June 29]

| \_\_\_\_\_  
\_\_\_\_\_