

# EVALUATION OF THE COSTA RICAN EXCELLENCE

## AWARD FOR HIGH QUALITY AND PERFORMANCE

Evaluación del "Premio a la Excelencia para la alta calidad y desempeño" en Costa Rica.

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**Henry Quesada-Pineda / [quesada@vt.edu](mailto:quesada@vt.edu)**

*Ph.D. Profesor Asistente. Especialista en Negocios y Sistemas de Manufactura.  
Instituto Politécnico y Universidad Estatal de Virginia (Virginia Tech).*

**Marcela Meneses Guzmán  
[mameneses@itcr.ac.cr](mailto:mameneses@itcr.ac.cr)**

*M.Sc. Profesora Asistente, Escuela de Ingeniería en Producción Industrial.  
Instituto Tecnológico de Costa Rica.*

**Guido A. Monge Fernández  
[gmonge@cicr.com](mailto:gmonge@cicr.com)**

*Director del Instituto de Excelencia Empresarial. Cámara de Industrias de Costa Rica*

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## INTRODUCTION

The use of international and national quality and competitive performance awards has long been recognized as an effective tool to measure outstanding industry performance of private and public organizations worldwide (Hendricks & Singhal, 2000). The importance of developing

realistic evaluation models that fit the characteristics of an industry, region, or country, has also been a subject of research for practitioners and academicians for a long time.

Having a business leadership award, whose goal is to recognize improvement efforts in any local business organization, is a significant pathway to increase the competitiveness of local firms in Costa Rica. During the last 20 years, this country has become an important destination to direct foreign investments (DFI), mainly in the manufacturing, service and tourist sectors. Many of these transnational companies (TCs) have found in Costa Rica the perfect location to expand their operations and increase customer service levels. However, it has been proven that creating partnerships with local companies is a challenge for many TCs. Most local companies do not have a business culture to become suppliers or partners of TCs in more than one business; in many cases, local suppliers do not have the capacity to understand that a business relationship is not one negotiation. On the other hand, TCs are looking for long term business relationships that can only be sustained if local companies, along with TCs, work together on a continuous effort to improve their business processes. Also, many local companies are willing to export their products and services to other countries. Competing in an international scale is very hard for any firm, even for the largest ones. The customer level service, quality, and internal operation standards are very hard to meet. If local companies are considering seizing international market op- >>

**En pocas palabras:**  
**¿Qué trata el artículo?- validar el modelo del “Premio a la Excelencia” utilizado por la Cámara de Industrias de Costa Rica.**

**¿Cómo?- comparación teórica con otros modelos y análisis estadísticos.**

**Hallazgos- estadísticamente el modelo es consistente pero se recomienda modificar algunos elementos. Los factores de “Liderazgo” y “Planificación Estratégica” son fundamentales e influyen en los restantes.**

>> oportunities, it is necessary to carry out a thorough evaluation of their internal processes and customer service levels, to move forward and become competitors at the international level.

Other significant reasons to incorporate changes in order to improve the competitiveness of local companies, is the concept of Corporate Citizenship. During the few last years, business organizations all over the world have turned their attention to what is really important for any company as a business organization. Being profitable is a direct consequence of keeping high levels of customer satisfaction. But besides financial satisfaction, many organizations have found that increasing internal and external activities to improve the life of their workers, protects the environment, helps the community with social projects, and improves their public perception., This has become a core part of their business strategy.

Despite the fact that worldwide awards are broadly used (e.g. Malcolm Baldrige Quality Award, Shingo Prize, etc.) to evaluate company performance in terms of their internal operations, customer facing performance, and corporate citizenship, there might be some factors, e.g. cultural, social and economical, that might not be adequately addressed by the general award models when they are applied to a specific location or country. To that extent, the Costa Rican Chamber of Commerce (Cámara de Indus-

trias de Costa Rica) took the lead role in 1998 and developed a model blending the Malcom Baldrige Award, European Quality Award, ISO standards, and the unique country characteristics, in order to recognize outstanding quality and performance. However, the model has not been statistically validated; therefore, the objective of this paper is to evaluate the model using a sample of several Costa Rican industries.

### LITERATURE REVIEW: COMPETITIVENESS, INNOVATION AND SUSTAINABILITY

The theories of competitiveness, innovation, and business sustainability provide the framework for business organizations to become and remain successful in the long term (Smukowski, 2006). Metcalfe and Ramlogan

(2008) stated that innovation is an economic act that relies on new perceptions of market opportunities. D’Cruz (1992) stated that competitiveness can be defined as the ability of a firm to design, produce, and/or market products superior to those offered by the competition, considering price and non-price qualities. During the last four decades, business organizations have seen the proliferation of several attempts to increase competitiveness, one of those attempts being the implementation of awards and similar frameworks. About the middle 80’s, the concepts of Quality Circles, and Total Quality Management (TQM) were conceived as a way to involve human resources from all company levels in the decision making (Kume, 1992). Several qualitative and quantitative tools came with the TQM concept that helped many business organizations in the manufacturing, service, financial, and government sectors to redesign their

processes in search of better levels of productivity (DeVor, Chang, & Sutherland, 1992). During the same decade, Toyota was extensively studied by many researchers who coined the concept of *lean thinking* (Womack & Jones, 2003). After TQM made a huge impact on the way business organization’s managers looked at customers, the Six Sigma concept was developed by Motorola in the early 90’s. Perhaps the most important contribution of the Six Sigma methodology, besides the



## The Costa Rican Excellence Award include: Leadership, Customer Satisfaction, Human Resources, Process Management, Technology and Innovation, and Results.

statistical process control foundation, was the addition of the Continuous Improvement Cycle of Deming based on five steps: define, measure, analyze, improve, and control (DMAIC). With this new process improvement approach, business organizations were able to start embracing continuous improvement over sporadic and finite attempts.

Today's global economy is classified as an innovation-based economy, but a few years ago the economy was labeled as a high-tech economy, and even before that, as a manufacturing-based economy (Situngkir, 2009). Morris (2006) promotes a definition where innovation can be classified in four different ways according to the degree of development within the organization: incremental innovations, product and technology breakthroughs, business model innovations, and new ventures. It is also possible to see innovation from a capability point of view. In regard to this concept, Christensen (2001) points out that managers who are interested in initiating an innovation process might be limited by the capabilities of their resources, processes, and values.

Sustainability and Corporate Citizenship are also becoming important core values of any firm today. According to The United States National Environmental Policy Act of 1969, sustainability is defined as the "creation and maintenance of conditions under which

[humans] and nature can exist in productive harmony, and that fulfill the social, economic, and other requirements of present and future generations of Americans." The 1987 report of the World Commission on Environment and Development, defines the concept as "meeting the needs of the present without compromising the ability of future generations to meet their own needs." EPA (2009) reports on its web site quite a few definitions of sustainability that are also accepted. The Consumers Electronics Association (CEA, 2009) explores the concept of environmental sustainability and innovation for industries in three different ways: product design, value-added processes, and giving back to the community. The last concept is also defined by the Boston College Center for Corporate Citizenship (BCCC, 2009) as the way in which a company understands, considers, and accounts for economic, social, and environmental impacts in the design of its products and services, the management of its operations, and its contribution to communities.

In summary, there are many examples in the literature of the use of business process improvement frameworks and criteria from different award models to increase competitiveness, innovation, and corporate citizenship (Leist, Gilman, Cullen, and Sklar, 2004; Belohlav, Cook, & Heiser, 2004; Furst-Bowe and Bauer,

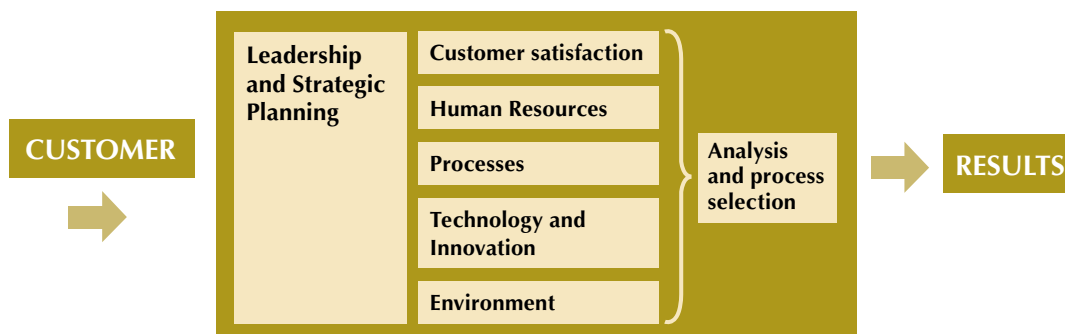
2007). But being effective and efficient at the same time still remains as the most difficult endeavor a business organization might try to pursue, and when environmental protection and corporate responsibility becomes part of the core strategy of the firm, the endeavor becomes even more difficult. As described earlier, there are many business process improvement frameworks that a business organization may use to increase its competitiveness and still be corporately responsible. Perhaps the application of business organizations to award competitions can lead to increased competitiveness, because the award model already incorporates many of the basics of all the business process improvement frameworks detailed here.

The evaluation framework used by the Costa Rican Chamber of Commerce is a blend of other international award frameworks. This blend is shown in Figure 1. The procedure used to develop this model framework was not investigated in this article, therefore the intention of the authors is to validate the model relationships by using statistical techniques from a sample of past award competitions.

### VALIDATION OF THE MODEL USING SECONDARY SOURCES

This model has six constructs that include the *Leadership, Customer Satisfaction, Human Resources, Process Management, Technology and Innovation,* and *Results* constructs. Subsequently, every construct is composed of individual items. The model framework of the CRCC seems to be based on several research theories such as the Strategic-Structure Theory by Chan- >>

Figure 1: Evaluation framework used by Costa Rican Excellence Award for High Quality and Performance (CRCC, 2008).



**Table 1: Leadership and Strategic Planning Construct**

ITEM	DESCRIPTION	CODE
<b>Leadership</b>	This item evaluates the path and guidance of the organization to pursue the strategic objectives considering organizational values and interests, and the communication and promotion of high performance.	<b>LSP_1</b>
<b>Responsibility</b>	It evaluates how the organization expresses and applies commitment to fulfill the external regulations, and corporate social responsibility.	<b>LSP_2</b>
<b>Strategic Planning</b>	It analyzes the predetermined strategic process used to develop the strategic framework that pursues strategic goals and objectives using action plans to improve organization performance.	<b>LSP_3</b>
<b>Selection of data, and performance indicators for leadership and strategic planning</b>	It reviews the organization process used to identify and select key performance indicators that, along with specific techniques, allow the organization to control and improve overall performance.	<b>LSP_4</b>

**Table 2: Customer Satisfaction Construct**

ITEM	DESCRIPTION	CODE
<b>Organization knowledge of the customer</b>	This item evaluates how the organization gains knowledge about its customer needs and expectations.	<b>CS_1</b>
<b>Satisfaction level and relationship with customers</b>	It evaluates the established processes to determine customer satisfaction, and the mechanisms to handle customer relationships, communication, feedback and customer complaints handling.	<b>CS_2</b>
<b>Selection of data, and performance indicators to measure customer satisfaction</b>	This item reviews the process used to identify and select key performance indicators that, along with specific techniques, allow the organization to control and improve overall customer satisfaction.	<b>CS_3</b>

>> dler (1991), the Theory of Organizational Complexity (Vancil, 1976), the Theory of Strategic Growing (Ansoff, 1965; Andrews, 1984), the Theory of Strategic Competitiveness from Porter (1992) and Ghemawat (1991), and the Theory of Capacity studied by Wernerfelt (1995), Barney (1989), Amit and Schoemaker (1993), and Peteraf (1993). The model supports, as well, the Theory of Dynamic Strategy by Porter (1992 and 1985). It also seems that many of the internal items of the constructs were taken from the Deming, European Quality (Evans, 2000) and Malcolm Baldrige National Quality Awards, the Lean Thinking Principles (Womack and Jones 2003), and the Six Sigma Methodology. The references to innovation and corporate citizenship seem to be based on the theory described

earlier. Following a detailed analysis of each construct is presented.

#### **Leadership and Strategic Planning (LSP):**

to make sure that the concept of quality is understood by the whole organization, it is necessary to identify their weaknesses and strengths, according to the concepts of Leadership and Strategic Planning (Balbastre, 2003; Conti, 1997). Furthermore, items similar to the ones suggested by Camisón (1999), and Camisón and Cruz (2002) were used in this construct. This construct emphasizes the vision, mission, value and strategic objectives of the organization and its overall performance, and it demonstrates that it is possible to comply with specific criteria on leadership. This construct

contains enough items to evaluate how the organization uses the strategic planning process to implement its vision and mission through the organization. Table 1 shows the items of this construct.

#### **Customer Satisfaction (CS):**

the criteria considered in the different quality awards around the globe, propose that companies should respond to high standards to assure total customer satisfaction (Balbastre 2003). Porter (1985) mentioned that a business organization must be seen as a value chain that is put together to meet certain customer expectations. An important element in the development stages of the model seems to be customer satisfaction that could respond to the fact that most of the industries in Costa Rica serve as a supplier base for worldwide companies. Thus, this construct considers the customer relationships that are based on the use of periodic customer satisfaction measurements from other competitors. Also the construct was designed to measure the communication

channels with customers in order to get feedback, market data and complaints. A description of the items that compose this construct is shown in Table 2.

#### **Human Resources (HR):**

one of the essential aspects of the evaluation tool is to measure the contribution of the employees to the company performance. According to Mintzberg (1993), it is required to focus on the skills of the employees to support the vision of the business. For this reason, organizations must identify and understand the needed set of current and future skills, and the only way to do it is listening, awarding and acknowledging employee contribution to the organization goals. It is also important to support HR activities that



increase employee satisfaction levels. Table 3 shows the detailed description of the items of this construct.

**Processes (P):** there are many business process improvement frameworks and methodologies that can be used to evaluate internal processes. From the analysis of the authors, this construct complies with frameworks such as Lean Thinking, Six Sigma, and TQM. Besides, this construct seems to consider the theory of Resources by Wernerfelt (1995), Stalk, Evans and Shulman (1992), and Amit and Schoemaker (1993), to help companies to understand that their critical processes must be related to strategies. In addition, the internal structure of this construct includes some standards from the ISO 9001-2000 framework. Table 4 shows the description of the items of the Processes construct.

Process management contributes to control and coordinates the activities of the organization using systems, processes and data shared among internal and external business functional areas. This construct considers that a group of well designed and integrated processes will benefit the systematic implementation of policies, strategies, objectives and organizational plans. On the other hand, suppliers are considered as a very important element to improve organizational performance.

**Technology and Innovation (T&I):** the Baldrige Quality Program (Hamilton 2003) was considered to create this construct. High performance organizations expect to seize the knowledge to create innovation and better improvement opportunities. Because of this, organizations should set up proper information technologies to control and coordinate innovation through the whole organization. At the same time, >>

Table 3: Human Resource Construct

ITEM	DESCRIPTION	CODE
Human Resource participation and development	It evaluates the HR processes to optimize employee participation in decision making and employee development activities.	HR_1
Human Resource Performance	This item assesses actual systems that support and guide employee performance, including compensation and acknowledgment for their achievements.	HR_2
Employee skills	It examines current systems to identify proper skill sets needed in the short, medium and long term. It also identifies gaps in human resource development and how the organization should contribute to the development of the required set of skills.	HR_3
Human resource satisfaction levels	It analyses the systems and processes related to a safe and hygienic work environment. Also evaluates the procedures to support human resource satisfaction and prosperity of the employees	HR_4
Selection of data, and performance indicators to measure human resource satisfaction	It reviews the process of the organization used to identify and select key performance indicators that, along with specific techniques, allow the organization to control and improve the human resource satisfaction, in general.	HR_5

Table 4: Processes Construct

ITEM	DESCRIPTION	CODE
Core processes	It considers aspects related to current systems to assure consistency and development of processes.	P_1
Support processes	This item examines aspects related to the definition of requirements to support processes and process design activated to meet such requirements.	P_2
Relationship with suppliers	It evaluates systems and established process in the organization to define and assure the proper selection and development of new suppliers.	P_3
Selection of data, and performance indicators to measure process satisfaction	It reviews the process of the organization used to identify and select key performance indicators that, along with specific techniques, allow the organization to control and improve overall process performance.	P_4

Table 5: Innovation and Technology construct

ITEM	DESCRIPTION	CODE
Innovation	This item includes elements such as the current level organization to carry out innovation at process, product and service level, as well as the efficiency and effectiveness achieved by the innovation process itself.	IT_1
Technology	It examines aspects related to the update of new technologies, and how training on new technologies is coupled within the organization.	IT_2
Selection of data, and performance indicators to measure innovation and technology	It reviews the process of the organization used to identify and select key performance indicators that, along with specific techniques, allow the organization to control and improve overall innovation and technology performance.	IT_3

>> organizations must remain conscious of the new technological changes.

Nevertheless, the authors have detected that this construct needs to be more sensitive about the usage of current specific information technology frameworks to automate processes. It is probable that, in the future, information technology solutions such as Enterprise Resource Planning (ERP), Customer Relationship Management (ERP), Enterprise Application Integration (EIA), and Business Process Management Suites (BMPS) might play an important role on the company performance according to Harmon (2007). Table 5 shows the items of the Innovation and Technology construct.

**Environment (E):** according to EPA (2009), CEA (2009), and BCCC (2009), today environmental policies should be developed as an additional strategic choice in which companies rely to achieve excellence. In regard to this, the authors found that the current environmental sustainability construct, includes the key critical aspects mentioned by these leading organizations (see Table 6).

The necessary processes to develop a commitment to protect the environment, best environmental operating practices, and their improvement to protect the environment, are fundamental and well represented in this construct. The selection of key performance indicators to measure how the organization creates policies to protect the environment is evaluated and well defined in this construct as well.

**Results:** According to the Supply Chain Operations Reference Model (SCC, 2009) the evaluation of a value chain should have internal and external performance measurements. The first ones are related to the performance of internal processes, and the second ones to customer facing attributes. Based on this definition, the authors consider that

the CRCC award has a good balance of both types of measurements to assess business performance. It also seems that criteria proposed by Barney (1989), and Grant (1991) was also applied to validate the use of the selected overall performance measurements. See Table 7 for a detailed description of this construct items.

**Table 6: Environmental policies construct**

ITEM	DESCRIPTION	CODE
<b>Commitment with the environment</b>	It evaluates how the organization designs and deploys guidelines to strengthen environmental policy.	<b>E_1</b>
<b>Environmental practices</b>	This item evaluates the organization consistency and the improvement related to its operating processes to decrease the impact on the environment.	<b>E_2</b>
<b>Selection of data, and performance indicators to measure environmental performance</b>	Reviews the process of the organization used to identify and select key performance indicators that, with specific techniques, allow the organization to control and improve overall innovation and technology performance.	<b>E_3</b>

**Table 7: Results construct**

ITEM	DESCRIPTION	CODE
<b>Organizational overall performance results</b>	Results of the review of the organization performance to achieve effectively the objectives and goals.	<b>LSP_5a</b>
<b>Strategy and corporate responsibility results</b>	Results of the analysis applied to the methods used by the organization to develop the strategy to fulfill its responsibilities with the society and the local communities.	<b>LSP_5b</b>
<b>Customer satisfaction results</b>	Results of the achieved performance related to the customer satisfaction levels compared with other competitors.	<b>CS_4a</b>
<b>Marketing results</b>	Results of the performance level in relation to the market gains compared to the main competitors of the organization.	<b>CS_4b</b>
<b>Human Resource results</b>	Results of the assessment organization achievements based on human resource satisfaction parameters.	<b>HR_6</b>
<b>Processes results</b>	Results of the achieved performance related to the operating processes compared to organization's main competitors.	<b>P_5a</b>
<b>Relationship with suppliers results</b>	Results of the level of performance related to current suppliers, compared to the suppliers of the competition.	<b>P_5b</b>
<b>Innovation and technology results</b>	Results of the evaluation of the achieved performance in this category using specific measurements on innovation and technology deployment.	<b>IT_4</b>
<b>Environmental policies results</b>	Results of the review of the organization achievements related to the protection of the environment.	<b>E_4</b>

## STATISTICAL VALIDATION OF THE MODEL

The second objective was to evaluate the internal consistency and the constructs relationships of the model used by the CRCC by means of a statistical procedure. The me-

thodology and results used to conduct this statistical analysis are described below.

**Application of the evaluation tool:** The evaluation tool is applied by a group of consultants hired by the CRCC. Every year, a group of consultants is assigned to each firm applying to the award competition. These groups had on-site meetings with the representatives of the firm where every firm was asked for documentation related to financial, customer, innovation, and internal operations issues. The consultants also tour and observe the core process, or processes, in order to evaluate and rank the internal activities according to the CRCC award guidelines.

The authors carefully reviewed data from the 2000 to 2005 award application processes. It was found that different models were used every available year; therefore combining data was not a viable option from a logistical and statistical point of view. Due to this situation, the authors decided to use the most recent available year (2005), which consists of 19 valid CRCC award applications to perform the statistical analysis.

**Data analysis:** The internal consistency of the constructs was analyzed using the Alpha Coefficient of Cronbach. Factor Analysis was used to test the validity of each construct by using the principal analysis method, with VARIMAX rotation. Finally, ANOVA was used to identify the relationships and influence of some of the constructs on the others.

**Internal consistency and reliability of the data:** According to the results of the analy-

Table 8: Results construct

CONSTRUCT	ITEM	CRONBACH ALPHA COEFFICIENT	ITEM'S WEIGH IN FACTOR	CONSTRUCT	ITEM	CRONBACH ALPHA COEFFICIENT	ITEM'S WEIGH IN FACTOR
<b>Leadership and strategic planning (LSP)</b>	LSP_1	0.88	0.91	<b>Technology &amp; Innovation (T&amp;I)</b>	IT_1	0.50	0.50
	LSP_2	0.94	0.73		IT_2	0.75	0.75
	LSP_3	0.87	0.95		IT_3	0.87	0.87
	LSP_4	0.90	0.87	<b>Environment (E)</b>	E_1	0.97	0.97
<b>Customer satisfaction (CS)</b>	CS_1	0.84	0.88		E_2	0.88	0.88
	CS_2	0.76	0.79		E_3	0.69	0.69
	CS_3	0.87	0.92	<b>Results</b>	LSP_5a	0.94	0.94
<b>Human Resources (HR)</b>	HR_1	0.94	0.95		LSP_5b	0.94	0.94
	HR_2	0.95	0.91		CS_4a	0.94	0.94
	HR_3	0.94	0.92		CS_4b	0.94	0.94
	HR_4	0.95	0.84		HR_6	0.95	0.95
	HR_5	0.94	0.91		P_5a	0.94	0.94
<b>Processes (P)</b>	P_1	0.81	0.91		P_5b	0.95	0.95
	P_2	0.81	0.92		IT_4	0.94	0.94
	P_3	0.90	0.65		E_4	0.95	0.95
	P_4	0.85	0.77				

sis, all the constructs appear to have a single dimension as proposed by the model. The Alpha Coefficient of Cronbach was used to test the internal reliability of each construct (item purification). The results show that all Alpha Coefficients are greater than 0.76 for each item, apart from two items in the Technology and Innovation, and Environment constructs (Table 8). In consequence, the authors decided to eliminate these two items to increase the validity of the ANOVA test, since they believed the remaining items adequately captured the constructs.

The exploratory factor analysis was performed after the data purification, and it was

used to test the factor structure to assess discrimination validity at the construct level. Principal analysis method with VARIMAX rotation was used for the extraction method on each case. In Table 8, it can be appreciated that all items of every factor is greater than 0.65, with the exception of the item IT\_3. For this reason, this item was eliminated too.

Once the unreliable items were removed from the constructs, exploratory factor analysis (principal method and VARIMAX rotation) was performed again to confirm internal consistency, validity, and overall structure of the constructs. These new results confirm satisfactorily the validity of the items and the sample adequacy.



**Worldwide awards examples are: Malcolm Baldrige Quality Award, Shingo Prize, European Quality Award.**

**Table 9: Summary of ANOVA tests (significance level of 0.05 in all cases)**

HYPOTHESIS	MODEL	R2	F value	P value	DECISION
<i>Leadership and strategic planning as independent variable</i>					
Customer Satisfaction	$SC = b_0 + b_1 * LSP + \epsilon$	0.36	10.07	0.006	Reject $H_0$
Innovation & Technology	$IT = b_0 + b_1 * LSP + \epsilon$	0.24	5.36	0.034	Reject $H_0$
Human Resources	$RH = b_0 + b_1 * LSP + \epsilon$	0.41	12.02	0.003	Reject $H_0$
Processes	$P = b_0 + b_1 * LSP + \epsilon$	0.44	12.03	0.003	Reject $H_0$
Environment	$A = b_0 + b_1 * LSP + \epsilon$	0.29	6.85	0.018	Reject $H_0$
<i>Innovation and Information Technology as independent variable</i>					
Processes	$P = b_0 + b_1 * IT + \epsilon$	0.24	5.34	0.030	Reject $H_0$
Customer Satisfaction	$SC = b_0 + b_1 * IT + \epsilon$	0.36	8.45	0.009	Reject $H_0$
<i>Environment as independent variable</i>					
Customer Satisfaction	$CS = b_0 + b_1 * A + \epsilon$				Reject $H_0$
Processes	$P = b_0 + b_1 * A + \epsilon$	0.13	2.58	0.13	Do not Reject $H_0$

>> **ANOVA test:** ANOVA was used to statistically measure the effect of the constructs Leadership and Strategic Planning, Technology and Innovation, and Environment, as independent variables of some of the other constructs (dependent variables). Table 9 shows the results of the ANOVA tests. For this research, it was critical to test the influence of the construct Leadership and Strategic Planning on the remaining constructs. In all cases, the ANOVA test showed that this factor influence the other factors (IT, HR, P, and E). Moreover, it was of interest to the research group to test the influence of the construct or factor IT, on the factors P and CS. For both cases, it was found that the IT really influences both factors. Finally, ANOVA test was also used to examine the influence of the factor E on CS and P. In the first test, it was found that it is influent. In the second, on the other hand, the ANOVA test showed that factor E does not influence factor P.

## CONCLUSIONS AND DISCUSSION

This paper assessed the internal consistency and factor structure of the Costa Rican Excellence Award evaluation tool used by the Costa Rican Chamber of Commerce to recognize quality and high performance achievement of Costa Rican firms. The Alpha Coefficient of Cronbach and exploratory factor analysis were used to test internal reliability and consistency of the award model. This analysis indicated that some of the items might need to be removed from the model. The overall structure of the evaluation tool (constructs) seems to be correct.

It was also important for the research team to test the influence of the factors Leadership and Strategic Planning, Innovation and Technology, and Environment on the other remaining factors. It was found that these factors have a positive influence on the others, with

the exception of the factor Environment that does not influence the dependent variable processes. It was expected that the factor Environment would have a positive effect in at least some of the other factors, but it did not. To the firms that lead the important efforts in corporate citizenship and environmental protection, this should be contemplated if the intention is to increase performance on internal operations or financial issues. The other hypothesis is that perhaps the designs of the items of the factor Environment need to be revised in order to capture better this dimension into the award model. All this information should be taken into account by the academicians when they prepare or develop new college curricula. However, more research must be carried out as a confirmatory analysis.

The main recommendation to be made is that the Costa Rican Chamber of Commerce must evaluate the award tool in order to keep consistency and internal reliability. The ANOVA test showed that Leadership and Strategic Planning is a key influence factor on Customer Satisfaction, Innovation and Technology, Human Resource, Environment, and Internal processes. For practitioners, this finding reinforces the concept that the good leadership and strategic planning have a heavy influence on the other organization processes. The results of this research can contribute to redesign the evaluation tool to verify for internal consistency, reliability, and proper construct structure. Future research should be directed to redesign the evaluation tool, and test it with a valid sample of firms. Also benchmarking of other recognized evaluation tools is recommended. As indicated earlier, a confirmatory study will be necessary in order to verify the results obtained in this exploratory research.

## Referencias bibliográficas

- Amit, R. and Schoemaker P.J.H. (1993). Strategic Assets and Organizational Rent. *Strategic Management Journal*, 14:33-46.
- Andrews, K.R. (1984). El Consejo de Admi-



nistración y la Formulación de la Estrategia Empresarial. Harvard Deusto Business Review, 3er Trim., pg. 87-95.

Ansoff, H.I. (1965). Corporate Strategy: An Analytic Approach to Business Policy for Growth and Expansion. McGraw-Hill, Nueva York,

Balbastre, F. (2003). TQM self-assessment evolves and promotes strategic learning at Ericsson España SA. Journal of Organizational Excellence, 22(2):65-7.

Barney, J.B. (1989). Assets Stocks and Sustained Competitive Advantage: a comment. Management Science, 35 (12):1511-1513.

Belohlav, J.A., Cook, L.S, and Heiser, D.R. (2004). Using the Malcolm Baldrige National Quality Award in Teaching: One Criteria, Several Perspectives. Decision Sciences Journal of Innovative Education. 2(2): 153-176

Boston College Center for Corporate Citizenship BCCC. (2009). Managing Corporate Citizenship. Available at [www.http://www.bccccc.net/](http://www.bccccc.net/)

Camisón C., (1999). La medición de los resultados empresariales desde una óptica estratégica: construcción de un instrumento a partir de un estudio Delphi y su aplicación a la empresa Industrial española en el periodo 1983-93. Estudios Financieros 199, octubre.

Camisón C., and Cruz S. (2002). Oh how measures competences: to examination to reliability and validity of multi-item models for measuring intangible assets. Unpublished paper.

Consumer Electronics Association CEA. (2009). Environmental Sustainability and Innovation in the Consumer Electronics Industry Report.

Chandler, A. D., Jr. (1991). La Lógica Permanente del Éxito Industrial. Harvard-Deusto Business Review, 1er Trim., pg. 117-129.

Conti, T. (1997). Optimizing self-assessment. Total Quality Management, 8(2-3): 5-15.

Cronbach, L.J. (1951). Coefficient alpha and the internal structure of tests. Psychometrika 16: 297-334.

Costa Rican Chamber of Commerce CRCC. (2008). Costa Rican Excellence Award for High Quality and Performance Application Package. Instituto de Excelencia Empresarial.

Evans, L. (2000). Administración y Control de la Calidad, 4ª Ed. European Foundation for Quality Management (EFQM). 2003. Modelo EFQM de Excelencia, Bruselas.

Christensen, C. (2001). Assessing Your Organization's Innovation Capabilities. Leader to Leader, 21:27-37

D'Cruz, J and Rugman. A. (1992). New Concepts for Canadian Competitiveness, Kodak, Canada.

DeVor, R., Chang, T., and Sutherland, J. (1992). Statistical and Quality Design and Control: Contempora Concepts and Methods. Macmillan Publishing Co. NY, USA.

Environmental Protection Agency –EPA- (2009). Sustainability. Available at <http://www.epa.gov/sustainability/>.

Furst-Bowe, J.A., and Bauer, R.A. (2007). Application of the Baldrige model for innovation in higher education. New Directions for Higher Education, 137: 5-14

Ghemawat, P. (1991). Commitment: the dynamic of strategy, Free Press, N.Y.



>> Grant, R.M. (1991). The Resource-Based Theory of Competitive Advantage: implications for strategy formulation. *California Management Review*, spring, p. 114-135.

Hamilton, B. (2003). Assessment of leadership attitudes about National Institute of Standards and Technology. Malcolm Baldrige National Quality Program. Available at <http://www.quality.nist.gov>. Last access March 2009.

Hendricks K.B., and Singhal, V.R. (2000). The Impact of Total Quality Management (TQM) on Financial Performance: Evidence from Quality Award Winners.

Kume, H. (1992). Herramientas estadísticas básicas para el mejoramiento de la calidad. Grupo Editorial Norma. Bogota.

Leist, J.C., Gilman, S.C., Cullen, R.J., and Sklar, J. (2004). Using Baldrige Criteria to Meet or Exceed Accreditation Council for Continuing Medical Education Standards. *The Journal of Continuing Education in the*

*Health Professions*, 24: 57-63.

Metcalfe, S., and Ramlogan, R. (2008). Innovation systems and the competitive process in developing economies. *The Quarterly Review of Economics and Finance*, 48(2): 433-446.

Mintzberg, H. and Quinn J.B. (1993). *El proceso estratégico: conceptos contextos y casos*. Prentice Hall, N.Y.

Morris, L. (2006). *Permanent Innovation: The Definitive Guide to the Principles, Strategies, and Methods of Successful Innovators*. Available at [www.permanentinnovation.com](http://www.permanentinnovation.com)

Peteraf, M.A. (1993). The Cornerstones of Competitive Advantage: a resource-based view. *Strategic Management Journal*, 14:179-191.

Porter, M.E. (1992). *Estrategia Competitiva*. Editorial Continental, México D.F.

Porter, M.E. y Millar, V.E. (1985). How Information Give You Competitive Advantage.

*Harvard Business Review*, July-August, p. 149-160.

Situngkir, H. (2009). Evolutionary Economics Celebrates Innovation and Creativity-Based Economy. *Journal of Knowledge Management*, 7(2):7-17.

Stalk, G., Evans, P. y Shulman, E. (1992). Competing on Capabilities: the new rules of corporate strategy. *Harvard Business Review*, Mar.-Apr., p. 57-69.

Vancil, R.F. (1976). Strategy Formulation in Complex Organizations. *Sloan Management Review*, winter 1976, p. 1-18.

Wernerfelt, B. (1995). The Resource-Based View of the Firm: ten years after. *Strategic Management Journal*, 16:171-174.

Womack, J. and Jones, D. (2003). *Lean Thinking*. Free Press, N.Y.

## ABSTRACT:

In this paper, the authors analyzed the internal validity of a model used by the Costa Rican Chamber of Commerce to recognize the outstanding performance in manufacturing and service industries in Costa Rica. Using an extensive literature review, the authors validate the current structure of the award model by comparing it with different business process improvement methodologies and frameworks. Secondly, the authors used a sample of firms that competed for the award in 2005, to statically validate the configuration of the model. Multivariate statistical techniques, including Alpha Coefficient of Cronbach and exploratory factor analysis, were used to validate the model. Also, recommendations were made to improve the validity of the existing model. Additionally, the analysis of variance (ANOVA) was used to test the influence of some of the critical factors evaluated by the model.

**Keywords:** Quality, Costa Rica, performance, empirical analysis, developing countries

## RESUMEN:

En este artículo se intenta validar la estructura del modelo usado por la Cámara de Industrias de Costa Rica para reconocer el éxito empresarial en los sectores de manufactura y servicios en Costa Rica. Primeramente los autores compararon el modelo del Premio a la Excelencia con otros modelos en la literatura. Segundo, los autores utilizaron la muestra de empresas que aplicaron al premio en el año 2005 para estadísticamente validar la configuración del modelo usado en el premio. Métodos estadísticos como el coeficiente alpha de Cronbach y análisis factorial fueron usados para validar el modelo y se hicieron recomendaciones para mejorar el modelo existente. Finalmente se utilizó ANOVA para medir las relaciones entre los factores del modelo.

**Palabras Clave:** Calidad, Costa Rica, desempeño, análisis empírico, países en desarrollo