WORLD MANAGEMENT SURVEY; AN INDUSTRY BENCHMARK, COLOMBIA AND NEW ZEALAND

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1. Abstract

The purpose of this study is to determine the interactions among factors such as lean practices, human capital management, process innovation, and strategic goals when fostering a business performance, it is making a comparing between New Zeeland and Colombia. This study uses structural equation modeling to test the hypothesized relationships between the variables. We use an innovative survey tool to collect management practice data from 179 medium-sized firms in Colombia and 125 from the New Zeeland. Data were downloaded from the World Management Survey website. The findings from the Structural Equation Modeling process shows a New Zealand and Colombia have to train the employees in process innovation, moreover lean practices need to start being implemented in Colombia and New Zealand due, the only variable that has an impact on lean practices is 'process innovation' and additionally, Implementing strategic goals is required to achieve lean practices.

Resumen

El propósito de este estudio es determinar las interacciones entre factores como las prácticas lean, la gestión del capital humano, la innovación de procesos y los objetivos estratégicos cuando se fomenta el desempeño de un negocio, se está haciendo una comparación entre Nueva Zelanda y Colombia. Este estudio utiliza modelos de ecuaciones estructurales para probar las relaciones hipotéticas entre las variables. Utilizamos una herramienta de encuesta innovadora para recopilar datos de prácticas de gestión de 179 empresas medianas en Colombia y 125 de Nueva Zelanda. Los datos se descargaron del sitio web de la World Management Survey. Los resultados del proceso de Modelización de ecuaciones estructurales muestran que Nueva Zelanda y Colombia tienen que capacitar a los empleados en la innovación de procesos, además, las prácticas lean deben comenzar a implementarse en

Colombia y Nueva Zelanda debido, la única variable que tiene un impacto en las prácticas lean es 'proceso de innovación' y, además, la implementación de objetivos estratégicos es necesaria para lograr prácticas lean.

Keywords: Process innovation, strategic goals, human capital management, lean practices.

Palabras clave: Innovación de procesos, objetivos estratégicos, gestión del capital humano, prácticas lean.

2. Literature Review

2.1. Process Innovation

When defining innovation in the business field, a great variety of perspectives arises in the literature. According to Arocena & Sutz (2000) innovation has been recognized as a key factor for competitiveness, at both the business and the country level. Innovation implies processes of change undertaken by firms that are affected by a broad set of economic, political, social, cultural, scientific and technological issues. Roberts (1988) and Verhaeghe & Kfir (2002) Innovation is the successful exploitation of new ideas, products, process and services in the market with aim create a competitive advantage for the organization. On other hand, the innovation is not just about opening up new markets it can also offer new ways of serving established and mature ones (Tidd, 2011).

According to Kahn (2018) innovation requires thinking around outcome, process, and mindset. Evangelista & Vezzani (2010) define innovation as the investment in organizational activities with the purpose of creating new knowledge and also considers any activity in

strategy or processes change. As reported by Dosi (1982) innovation is not seen as the sum of individual actions or processes but more as a set of actions that includes: problem-solving processes. Tidd, Bessant, & Pavitt (2011) defined four broad categories of Innovation. Product innovation; Changes in the product or service that the organization offers, process innovation; Changes in the internal processes of the organization, position innovation; Changes in the market introduction of products or services and paradigm innovation: changes in mental models of the organization.

Innovation matters, not only at the level of the individual enterprise, but increasingly as the wellspring for national economic growth (Tidd, Managing Innovation: Integrating Technological, Market And Organizational Change, 2011). Conforming to Porter (1985) the term innovation is used in the literature to describe the process of using new knowledge, technologies, and processes to generate new products and improvements in their use. furthermore, Lundvall (1992) states that almost all innovations reflect existing knowledge (learning) in combination with new uses, sustaining the concept of evolution. Such new knowledge is crucial to process innovation and helps the firm to be efficient and, in turn, develop new products in the most effective way (Brown & Eisenhardt, 1995). Is important acknowledger, Tidd & Bessant (2014) that the innovation on processes plays an equally or even more important strategic role than the development of new products, which is seen in the market as the summit of innovation. On other hand, process innovation is not only defining how things are created but also how the products or services are delivered to the clients or the next step in the supply chain (Tidd & Bessant, 2013).

As reported by Hendela, Turoff, Hiltz, & Fjermestad (2017) Innovation creates new and different strategies that will make a difference in each market. therefore, may be

suspected of occur a strategic goals influence in improvement of the process innovation. Indeed, operational efficiency combined with strategic flexibility is an imperative requirement for developing such innovation skills (Boer, Kuhn, & Gertsen, 2006). Strategies also influence how the different processes of the firm are established, thus have a significant impact on how the organization performs. Considering that organizations that operate in an innovative climate with clear strategic objectives have a higher probability of success. Given the aforementioned this study contends that strategic goals are essential to ensure enhance process innovation will positively influence firm performance. Thus, it is hypothesized that:

Hypothesis 1: There is a positive relationship between strategic goals and process innovation.

Process innovation is important to improve lean practices. According to Utterback & Abernathy (1975), the perfection of the process through the implementation of new technologies will make it possible to focus on reducing costs and achieve a better market share or a sharper competitive edge. Some companies are able to get more out of their inputs than others because they eliminate wasted effort, employ more advanced technology (Porter M. , 1996). in consideration of, the role of the process innovation is important to reduce waste, in this sense is relevant considering to System of Innovation (SI), according to Edquist, (1997) the SI is expected to have an advantage in that it expends fewer resources to make innovations, therefore, there is less 'waste'. SIs are here defined as a network involving individual and collective processes of searching, learning, and selection among different innovation opportunities, including technical and economic dimensions (Edquist, 1997). Given this study contends that process innovation is essential to ensure enhance lean practices

in the organizations, therefore, it will positively influence firm performance. Thus, it is hypothesized that:

Hypothesis 2: There is a positive relationship between process innovation and lean practices.

2.2. Human Capital Management

HCM is defined in the Oxford English Dictionary as "the skills the labor force possesses and is regarded as a resource or asset." Based on human capital theories (Becker, 1962), resource-based view and capabilities, from an economic-productive perspective, human capital (HC) can be defined as the set of resources, capabilities, and competencies that individuals possess to assume responsibilities at the organizational level. According to Goldin (2014), HCM is the stock of skills that the labor force possesses. HCM was described by Baron & Armstrong (2007) as a strategic approach to people management that focuses on the issues that are critical to the organization's success. It is important to highlight, the purpose of the HCM in any organization is to enable the improvement of employees' performance and their contribution to the organizations in a strategic, ethical and socially responsible manner (Schoenfeldt & Shaw, 2013). In addition to the traditional personnel and human resource management, there is a need for a new approach to personnel management, which we call Human Capital Management (HCM). HCM emphasizes an alignment between the individual and the organization and in our view offers the challenge and the key to successful management in the future (Marrewijk & Timmers, 2003).

Nowadays human capital importance is reporting for several authors. Increasingly, companies are finding that the creativity of their human capital is their key asset for expansion (Barrett, 1998).Considering Barrett (1998) In a world where competition has

become global and where knowledge and technology flow readily across international boundaries, companies are learning that the only way to build real competitive advantage is through their human capital. On the other hand, Beck & Cowan (1996) mention when designing a new entity, be certain have an accurate inventory of available financial, human, technological, and knowledge resources, highlighting the importance of the human capital in the organization strategy. Besides seeking continuous improvement, according to Collins & Porras (1994) visionary companies invest heavily in the future. visionary companies consistently invested more in new property, plant, and equipment as a percentage of sales than all but a few comparison companies. They also paid less in dividends, opting to reinvest the money, made significant investments in "universities" and education centers. another perspective, Perez & Ordóñez de Pablos (2003) highlights the fact that, in the new economy, the achievement of a sustained competitive advantage depends on the firm's capacity to develop and deploy its knowledge-based resource.

The function of HCM has come a long way from playing the role of an administrator to playing the role of a business partner, contributing directly to the organization's attainment of overall objectives (Schoenfeldt & Shaw, 2013). In this respect, strategic goals has important to enhance HCM. Certainly, HCM could be in organization strategy either as a specific capability or as instrumental in developing resources. Marler & Fisher (2013) argue this strategic it is hard to imitate because it is based primarily on knowledge resources, and there are no strategically equivalent substitutes. All this, by creating strategic partnerships, promoting intra-organizational and inter-organizational learning, building trust and fostering synergy between different involved firms (Lengnick-Hall & Rigsbee, 2013). Furthermore, researchers such as (Jabbour & Jabbou, 2016) and Gorman et al. (2017) argue a direct impact

of HCM on organizational results. This study contends that strategy goals are essential to ensure a enhance human capital management. Thus, it is hypothesized that:

Hypothesis 3: There is a positive relationship between strategy goals and human capital management.

According to (Kazlauskait & Bučiūnien, 2005) The centrality of human resources is usually accounted for by the fact that nowadays organizations are facing such challenges as a need to increase productivity, expand into global markets, develop new technologies, respond to changes in the highly volatile marketplace, increase revenue and decrease costs, develop skilled and flexible workforce, and introduce changes, (Burke, 2005), which, of course, emphasises the significance of human resources and capabilities. Besides, stated organizational goals for HCM investments include cost reduction through streamlining HCM operations (Marler & Fisher, 2013). This manifests that investing in HCM organizations can reduce cost and waste. On the other hand, considering Liu, Combs, Ketchen, & Ireland (2007) state that HCM highly committed and trained allows employees to handle complex tasks both within and between companies into the supply chain. Thus, in view of the impact of human capital management on lean practices, this study hypothesized that:

Hypothesis 4: There is a positive relationship between human capital management and lean practices.

2.3. Strategic Goals

According to (Christensen, 1997), there are two challenges related to competitive strategy development and implementation. “The first is to ensure that the strategy is not a reflection of the biases of the management team-biases that are likely to be rooted in the organization’s

past successes. The second challenge is to ensure that once a company has outlined a viable strategy, it allocates resources in a way that accurately reflects the strategy" (142).

Christensen says the competition in strategy is achieved through practice and continued strategic planning. One of Christensen's last comments in the article is "If companies make these tasks an integral part of their annual planning process, their managers will become competent strategic thinkers" (156).

In word (Kaplan, 2000) of the key to executing the company's strategy is for people to understand it. In the other hand, according to (Porter M. E., 1996) "Strategic continuity does not imply a static view of competition. A company must continually improve its operational effectiveness and actively try to shift the productivity frontier; at the same time, there needs to be ongoing effort to extend its uniqueness while strengthening the fit among its activities" (p. 78). However, companies must be able to change their strategic goal according to the changes that may occur in the industry. Companies must take a position in which they obtain advantages and can take advantage of market changes according to their capabilities.

2.4. Lean Practices

The lean manufacturing is a popular means of continuous improvement that has reshaped manufacturing processes, practices, and principles globally. Originating from the automobile industry, the approach has been used extensively in the manufacturing sector since the 1990s. In word of (Thangarajoo, 2015) lean manufacturing centered around the philosophy of continuously improving performances by systematically eliminating wastes in the manufacturing floor. Lean thinking was introduced to extend the concept from the manufacturing floor to a business operation level.

The term "lean" was coined to describe Toyota's business during the late 1980s by a research team headed by Jim Womack, Ph.D., at MIT's International Motor Vehicle Program.

According (Khodeir, 2016) to the lean principles are:

Table 1 Lean Principles

Lean principle	**Description**
Reduce non value-adding activities	Reduce any activity that consumes any type of resource or time and adds no value to the customer
Increase consideration of customer requirement	The clear identification of all customers and their needs in each activity from the start point, and achieve their values
Reduce variability	Reduce the uncertainty through the well-known of everything from the first point, and identify standards and values clearly for each participant from the start
Reduce cycle time	Reduce the total time in which the activity took place from processing till finishing. Reduction of cycle time consequently led to minimize the possibility of interruption of process and maximizing the customer delivery
Simplify by minimizing the number of steps and parts	Simplify the processes which lead to the product through removing any non-added value activities, allowing easy information flow, etc.
Increase output flexibility	Do each activity in its last allowable time (Just-In-Time principle), which increases the ability for catching any change orders
Increase process transparency	Allow all the production process activities and the information anytime for all the employees and participants. This helps in reducing errors and allows easy monitoring and improving of the process
Focus control on the complete process	The holistic monitoring and controlling of the production process

Lean principle	Description
Build continuous improvement into the process	Implement a continuous improvement to the whole process and employees through allowing employees to improve themselves and the whole process and make reward system to encourage employees. Pass from the monitoring of the process to the improvement of the process
Balance flow improvement with conversion improvement	Improve both flow and conversion of activities. High controlling of the flow will lead to conversion improvement
Benchmark	Study your competitors and compare your process with the best in the world. It is about the self-evaluation of your production process to improve yourself

3. Problem Statement

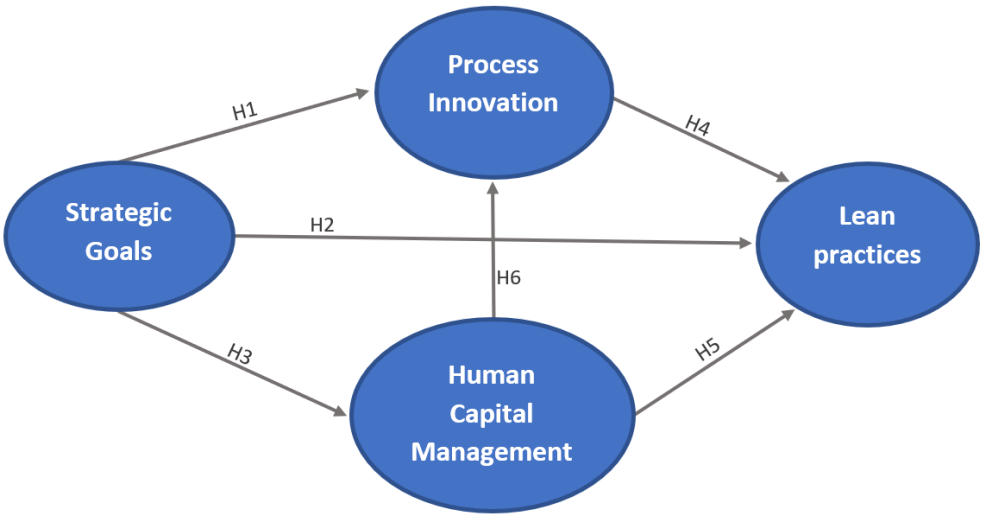

Figure 1 – Research Model with Hypotheses

4. Research Methods

To test the hypotheses, the survey instrument, measurement constructs, and best fit model were developed according to guidelines established by Hair et al. (2010). We use an innovative survey tool to collect management practice data from179 medium-sized firms in Colombia and 125 from the New Zeeland. Data were downloaded from the World Management Survey website.

The statements' mean ratings were used to build the variables that made up the structural equation model (SEM). According to Nachtigall et al. (2003) this methodology was chosen as it fits the requirements of this research and allows the analysis of latent variables and their relationships and the required sample is met by the collected data.

5. Data Analysis

Confirmatory factor analysis (CFA) was used to study the relationships between observed and continuous latent variables, and to determine the measurement model's overall fit (Cooksey, 2007; Hair et al., 2010). Factor loadings were estimated, items loaded on only one construct (i.e., no cross loading) and latent constructs were correlated (equivalent to oblique rotation in exploratory factor analysis).

The Chi-square equals, CMIN/DF of 1.620 and a 0.000 probability level. Note that Wheaton et al. (1977) suggested a ratio of approximately five or less as a reasonable criterion, Marsh and Hocevar (1985) recommended using ratios as low as two or as high as five, and Carmines and McIver (1981) suggested ratios in the range of 2:1 or 3:1 as indicatives of an acceptable fit between the hypothetical model and the sample data. In addition, the reliability of each of the constructs in the model was evaluated using several fit statistics, the root mean

square error of approximation (RMSEA) was acceptable as the model had a value of 0.71 and the maximum is considered to be 0.08 (Bentler, 1990; Jöreskog and Sörbom, 1982).

The baseline comparisons fit indices suggest that the hypothesized model fits the observed variance-covariance matrix well relative to the null or independence model (see Table 1). The values of the baseline comparisons are above 0.7 and supported the model, with results above 0.8 (Bentler, 1990).

Table 2 - Baseline Comparisons

New Zealand					
Model	NFI Delta 1	RFI Rho 1	IFI Delta 2	TLI Rho 2	CFI
Default	**0.843**	**0.813**	**0.933**	**0.919**	**0.932**
Saturated	1.000		1.000		1.000
Independent	0.000	0.000	0.000	0.000	0.000
Colombia					
Model	NFI Delta 1	RFI Rho 1	IFI Delta 2	TLI Rho 2	CFI
Default	**0.848**	**0.82**	**0.931**	**0.916**	**0.929**
Saturated	1.000		1.000		1.000
Independent	0.000	0.000	0.000	0.000	0.000

6. Results

The SEM findings are shown in the regression weights in Table 2 and the structural models in Figure 2 and 3. Following such data, a low and insignificant relationship between Strategic Goals and Lean Practices (b=0.43, p>0.05, Colombia, and b=-0.17, p>0.05, New Zealand) was found. The findings for H5, that low and insignificant relationship between Human Capital Management and Lean Practices, were rejected for both Colombia (b=0.14, p>0.05) and New Zealand (b=0.20, p>0.05). Additionally, a low and insignificant relationship was found between Human Capital Management and Process Innovation (b=0.14, p>0.05, Colombia, and b=0.16, p>0.05, New Zealand). Therefore, H2, H5, and H6

were rejected for both countries. These results are disquieting for both countries as they indicate that human capital shows scanty training in lean practices and in innovation processes. Likewise, the strategic goals are not significant for the implementation of lean practices.

Additionally, a strong and significant relationship between Strategic Goals and Process Innovation for both countries ($b=0.99$, $p<0.001$, Colombia, and $b=0.79$, $p<0.001$, New Zealand) was found, which supports hypothesis H1. Moreover, the results show a strong and significant relationship between Strategic Goals and Human Capital Management for both countries ($b=0.64$, $p<0.001$, Colombia, and $b=0.55$, $p <0.001$, New Zealand), which clearly supports hypothesis H3. These results are important for both nations inasmuch as they endorse the importance of strategies as a key element in process innovation. Specifically, this study findings support the theory about the importance of strategies having a positive impact on process innovation.

Finally, a marginally supported relationship ($b=0.44$, $p=0.012$) in Colombia and a high relationship ($b=0.97$, $p<0.001$) in New Zealand was found between Process Innovation and Lean Practices. These results could be explained by the lack of competitiveness in Colombia in comparison with New Zealand. According to the World Economic Forum (2019), this latter country is the 19th most competitive nation in the world, in the Global Competitiveness Index. Thus, the process innovation variable has a higher impact on New Zealand than Colombia.

Table 3 : Regression Weights: (Group number 1 - Default model) COLOMBIA

Colombia							
			Estimate	S.E.	C.R.	P	Label
ProccInnov	<---	STRATGOALS	0.997	0.199	5.002	***	H1-Accepted
Lean	<---	STRATGOALS	0.434	0.275	1.58	0.114	H2-Rejected
HCMangmt	<---	STRATGOALS	0.643	0.105	6.13	***	H3-Accepted
Lean	<---	ProccInnov	0.447	0.178	2.511	0.012	H4-Partially Accepted
Lean	<---	HCMangmt	0.147	0.192	0.769	0.442	H5-Rejected
ProccInnov	<---	HCMangmt	0.142	0.196	0.721	0.471	H6-Rejected

Table 4 : Regression Weights: (Group number 1 - Default model) NEW ZEALAND

New Zealand							
			Estimate	S.E.	C.R.	P	Label
ProccInnov	<---	STRATGOALS	0.795	0.207	3.832	***	H1-Accepted
Lean	<---	STRATGOALS	-0.173	0.385	-0.45	0.653	H2-Rejected
HCMangmt	<---	STRATGOALS	0.551	0.11	5.027	***	H3-Accepted
Lean	<---	ProccInnov	0.976	0.287	3.394	***	H4-Accepted
Lean	<---	HCMangmt	0.201	0.445	0.451	0.652	H5-Rejected
ProccInnov	<---	HCMangmt	0.162	0.302	0.537	0.591	H6-Rejected

Structural Model for Colombia and New Zealand

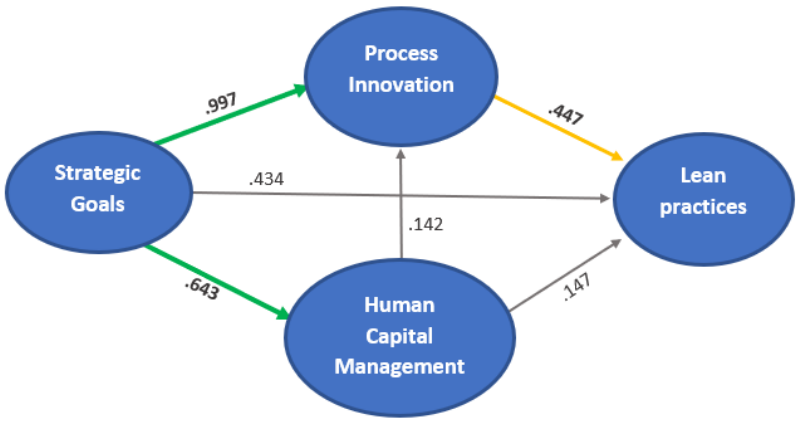

Figure 2 : Structural Model for Colombia

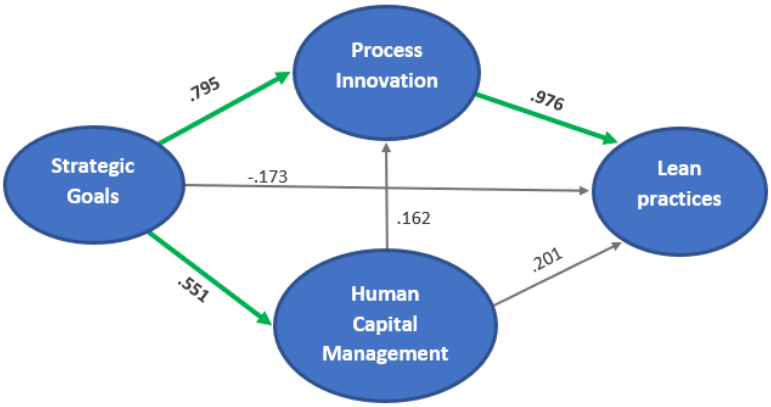

Figure 3: Structural Model for New Zealand

7. Discussion

The behavior of the variables is similar in both countries. I was found that the strategy made by the companies in both countries considers the human capital and process innovation as key drivers that would lead them to successful outcomes. In that sense, when establishing strategic goals, it is important to consider a high motivation, and to increase the skills, capabilities, and disposition of employees in order for them to perform their duties and responsibilities successfully. Moreover, the innovation processes are an essential part of the business strategy, that in an articulated way with the human capital, constitue the core stone of the strategy goals.

On the other hand, New Zealand and Colombia must train employees in Process Innovation. Due, H6 was rejected, human capital does not have an impact on process innovation, these confirm that both countries must work in this aspect, so human capital has to be trained in improving practices of innovation. In this way, a better use of employees and higher competitiveness will be achieved. Additionally, Lean Practices must begin to be implemented in Colombia and New Zealand. This is because the only variable that has an

impact on Lean practices is "process innovation". Additionally, lean practices must begin to be implemented by human capital. This shows us the importance between lean thinking and process innovation. On the other hand, the strategic goals do not have a direct impact on lean practices.

Another worrying result, in the case of Colombia, process innovation has a very low impact, which means that it is not as significant as it is in New Zealand. This shows the difference between a country that has reached high levels of competitiveness compared to one that has not. Theory says that New Zealand is going to become a very competitive country. According to BusinessNZ New Zealand is becoming more competitive (2017). Zealand now has a stable economy which is well accelerated for long term international competitiveness (investinnz, 2019). Additionally, World Economic Forum (2019) New Zealand ranks 19 out of 141 nations in the World Economic Forum's Global Competitiveness Index 2019. Although H4 was not totally rejected in Colombia, much work must be done in this country in lean practices, relying on Japanese production theories such as Lean Thinking or Kaizen. All these practices must be implanted and practiced by Colombian companies if this does not happen. Colombia will continue to be an underdeveloped country.

8. Conclusion

According to the data, it is observed that Colombia and New Zealand have similar practices, although Colombia still needs to work harder to be more productive.

In both countries, innovation processes must be considered for greater investment. The results of the study show that in Colombia it is not considered so important as in New Zealand and is an unfavorable point for his performance.

New Zealand has the advantage that its economic practices have been industrializing. According to Dinero Mag. "This country is an agricultural power and exports almost 90% of its production. Currently, it produces as much food as for 40 or 50 million people (a percentage very similar to the entire population of Colombia. With the impulse of the new technologies, the government of that country has also proposed to be a power in renewable energies. " (D., 2017). In Colombia, the government, the academy, and large entrepreneurs must work together to increase productivity and competitiveness at the international level.

On the other hand, according to the results, both countries do not consider and are not directed under a culture of lean practices. In specific Colombia, has to work a lot in lean practices, lean thinking, and kaizen. As long as this does not happen, Colombia will continue to be an underdeveloped country.

Finally, it can be concluded that strategic goals must be implemented to achieve lean practices. This is an opportunity for improvement at all levels of a company in terms of making the most of resources and being able to make a difference in the market. Innovating in business practices, investing in staff training, that is, human capital, could improve performance in sectors of the economy.

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