



**FACTORS THAT IMPACT THE LEAN PRACTICES: ¿WHAT IS THE POSITION OF
COLOMBIA COMPARE TO THE REST OF SOUTH AMERICAN COUNTRIES?**

AUTORES:

MANUELA ROJAS LÓPEZ

MARIA ALEJANDRA BETANCUR SANJUAN

DIRECTOR DEL PROYECTO:

DR. RICARDO ALBERTO SANTA FLOREZ

UNIVERSIDAD ICESI

FACULTAD DE CIENCIAS ADMINISTRATIVAS Y ECONÓMICAS

ECONOMÍA Y NEGOCIOS INTERNACIONALES

SANTIAGO DE CALI

MAYO 2020

INDEX

1. Resumen:	4
2. Summary	4
3. Introduction	5
4. LITERATURE REVIEW	6
4,1, BUSINESS STRATEGY GOALS.	6
4,2, HUMAN CAPITAL MOTIVATION.	7
4,3, LEAN PRACTICES	9
4,4, PERFORMANCE MONITORING	12
5. Research Methods	15
6. Data analysis	15
7. Results	16
8. Discussion	20
9. Conclusion	24
10. Bibliography	27

TABLES.

TABLE 1: BASELINE COMPARISONS	16
TABLE 2: REGRESSION WEIGHTS: (GROUP NUMBER 1 - DEFAULT MODEL) COLOMBIA	19
TABLE 3: REGRESSION WEIGHTS: (GROUP NUMBER 1 - DEFAULT MODEL) SOUTH AMERICA	19

GRAPHICS

GRAPHIC 1: PRODUCTION PROCESS COMPOSITION	
GRAPHIC 2: INCREASE OF PRODUCTION PROCESS COMPOSITION THROUGH KAISEN	11
GRAPHIC 3: RESEARCH MODEL WITH HYPOTHESES	14
GRAPHIC 4: STRUCTURAL MODEL FOR COLOMBIA	20
GRAPHIC 5: STRUCTURAL MODEL FOR SOUTH AMERICA	20

1. Resumen:

La siguiente investigación tiene como objetivo analizar el impacto de los diferentes variables como el monitoreo del desempeño, la motivación del capital humano y las estrategias de negocio sobre la implementación de las practicas limpias a nivel empresarial. De esta manera, utilizando la base de datos World Managment Survey desarrollamos un modelo estructural con el cual comparamos los entornos empresariales entre Sudamérica y Colombia para las variables en análisis.

Como resultado encontramos que la falta de comprensión de conceptos como la triple hélice de Porter, lo que significa una baja relación entre el gobierno, la educación y la industria. Además de una gran distancia de poder y del modelo de economía de desindustrialización presente en Colombia, los cuales dejan un largo camino por recorrer para obtener una estructura competitiva, desarrollar empresas de alta eficiencia, con una fuerte filosofía de mejora continua, innovación y alta competitividad que generen valor para el consumidor y se alineen con las prácticas lean para así poder permitir que los países en análisis compitan en el mercado internacional.

Palabras claves: Prácticas limpias, estrategias de negocio, motivación del capital humano y monitoreo del desempeño.

2. Summary

With the implementation of a structural model, this works aims to obtain a result on the impact that different key drivers such as Business strategy goals, Human capital motivation, and Performance monitoring have on the implementation of the Lean practices in the companies. Using the World Management survey data based we develop a model and compared the results for Colombia and South America.

As a result, we found that the lack of understanding of concepts such as the triple helix from Porter, meaning a low relationship between government, education and the industry, a high distance of power and the deindustrialization economy model presented in Colombia and most of the South American countries leaves a long way to go to obtain a competitive structure, develop high-efficiency companies, with a strong a philosophy of continuous improvement, innovation

and high competitiveness that create value for the consumer align with the lean practices that will allow this part of the world to compete in the international market.

Keywords: Lean practice, Business strategy, Human capital motivation, performance monitoring.

3. Introduction

There is a common goal in every company, as big or tiny they may be, and it is as simple as the maximization of benefits due to minimizing costs. The Lean practice theory aims to obtain that by reducing the reprocessing, with an innovative way to achieve sizable waste and cost reduction through the implementation of simpler methods of production. However, to obtain those results some key factors are part of the process and must work together in order to reach them. Business strategy goals, Human capital motivation, and performance monitoring must have a positive relationship between them as they are the key drivers to guarantee a lean practice performance.

M. Ferrer, R. Santa, C Soosay and P. Hyland explain in their article: “The critical competences needed for innovative organizational inter-firm and intra-firm integration” (2009) that business strategies must have an impact in the human capital motivation, by being aware of the meaning that having a human capital resource capable of understanding the value of the reduction of waste and cost-minimizing have in the competitive position of a firm. Planning the strategies to create a quality channel of communication in the cultural organization system will allow the monitoring of the performance, and all the problems could be fixed in a shorter period of time and with fewer resources needed. Obtaining an integration of the key drivers that impact the lean practices will guarantee better utilities and fewer losses within the firm.

In that way, throw the following investigation results interesting to establish and analyze a comparison of the relationship and the possible success of the lean practice implementation in the Colombian and South American companies, taking into account the different dynamics within each country. The different cultural behavior, the distance in power, the synergy between

the industry, the government, and the education could lead the results into different directions and the challenges that must face the parts would be different in magnitude and depth.

4. LITERATURE REVIEW

4.1, BUSINESS STRATEGY GOALS.

The reason why firms succeed, or fail is perhaps the central question in strategy (Porter , 1991). The strategy is seen as a way of integrating the different activities of the diverse functional departments within a firm. In Porter words (1991), strategy goals are functional policies that are needed to counter the centrifugal forces that lead functional departments in separate directions. Moreover, when referring to a successful strategy that leads to a firm's success it will be manifested in attaining a competitive position or series of competitive positions that lead to superior and sustainable financial performance.

Companies around the world must compete using strategic decisions such as new products in new markets, production of certain markets niches, certain segments and making changes to product characteristics (Suryana, 2003)The result of those decisions made in the different departments of a company would have a successful and significant influence on business performance, however, to determine whether a firm's strategic goals are being successful we must consider three essential conditions as Porter (1991) explain: the set of goals and functional policies made in the company must be capable of defining its position in the market, align the firm's strengths and weaknesses with the external opportunities and threats and finally create and exploit the "distinctive competences" of the company, meaning the unique strengths a firm possesses.

However, the growth of the markets in the 21st century has changed the way of obtaining a long-term competitive advantage. As Wind and Main (Wind & Main, 1998) claim in Balaton

(2007: p.9.), “the most risky strategy nowadays is the passivity”. In other words, the deployment of resources and capabilities are critical for getting and maintaining a privileged position among the competitors. That leads us to think in the firm’s internal drivers more known as the Resource based-view, that correspond to the strategic creation of sustainable competitive advantage and complement the focus on industry structure mentioned before that Porter has claimed for years (Brahma & Chakraborty, 2011).

The Resource-based view has had a major impact on strategy because the focus on the external forces is no longer the only suitable perspective due to the constant change of the environment and customer preferences. We could see that it is easier to control internal resources and capabilities than just facing the external and dynamic forces. Edith Penrose made it clearer when defining firms as a "bundle of resources" emphasizing the importance of resources for achieving superior business performance (Penrose, 2009)

4,2, HUMAN CAPITAL MOTIVATION.

The human capital theory proposes that employees make rational choices regarding investments in their own human capital (Becker, Human Capital, 1975). That is, employees of a company weigh the advantages and disadvantages of investing in the time, effort, and money in education, training and experience with the potential reward of such investments. Employees interact with different motivational variables that could lead them to career success. According to the expectancy-valence theory of motivation (Vroom, 1964) people are motivated to put effort if they expect that it will lead them to good performance which will end in valued outcomes (Katzell & Thompson, 1990). This theory holds that a firm’s capabilities and productivity lie in the firm-specific skills and abilities of its employees (Becker, Underinvestment in college

education? In *Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education*, 1994)

In that order, firms must supply their employees' motivational tools such as educational benefits that increase their skills and capabilities to perform their duties and responsibilities successfully in line with the business strategy as well as increasing their salary. Human capital motivation is a process of developing and/or unleashing expertise through organization development as well as individuals' training and development for the aim of improving performance (Swanson, 2001). It also refers to an organization's investments which advance the core competencies of their employees to accomplish competitive advantage (Harrison, 1992)

In other words, the fundamental postulation for this research is that employees in the form of HC, are essential to accomplish positive results since they are the ones who advance and implement a firm's strategies and processes and are the ones that control the standard. Therefore, firms with the deepest and best-developed pool of human capital are likely to be the most successful firms (Crook, Todd, Combs, Woehr, & Ketchen, 2011).

Additionally, Organizational culture strongly influences employees' behaviors beyond formal control systems, procedures and authority (O'Reilly, Chatman, & Cadwell, 1991) in that way we expect to see differences in the comparison between Colombia and the others South American countries as they remain different in their cultural and traditional behavior.

In that sense, the "Resource-based view" theory states that core skills such as the human capital are central to an organization's competitive advantage causing them to deserve attention and investment from the enterprise (Chaudhry & Roomi, 2010). Therefore, comes our first hypotheses:

H1: *There is a positive relationship between business strategy goals and a firm's human capital motivation.*

4,3, LEAN PRACTICES

There is a common goal in every company, as big or tiny they may be and it is as simple as the maximization of benefits due to minimizing costs. By having this on the mind, it can be easier to present the concept of Leaning practices as an innovative way to achieving sizable waste and cost reduction through the implementation of simpler methods of production, eliminating the non – value-adding and undesirable and less effective activities in the process of production and in the same way giving the customer what they expected in the most economical way possible (Azi, 2015). In that way, this management model is focused on the efficiency and the optimization as a whole, producing and doing more and in the same way minimizing the use of recourses such as capital, space, human capital, source materials, and unnecessary steps or activities and directing all the efforts towards the maximization of value generation for the companies to the clients. So, on the rights words, it would be all about getting the best result possible with the right recourses, in the right place, at the right time, in the right amount, minimizing waste, being flexible, and adaptable to changes.

As the main keys of lean practices Eiziyi, B and Isidore, E stand out the following:

reduction of non-value-adding activities (ii) increasing consideration on customer requirement, (iii) reduction in variability (iv) reduction of cycle time (v) simplification by minimizing the number of steps and parts (vi) increasing output flexibility (vii) increasing process transparency (viii) focus on control of the

complete process (ix) building continuous improvement into the process (x)
balancing flow improvement with conversion improvement, and (xi) benchmarking.
(Babalola, Eziyi O. Ibem, & Isidore C. Ezema, 2019)

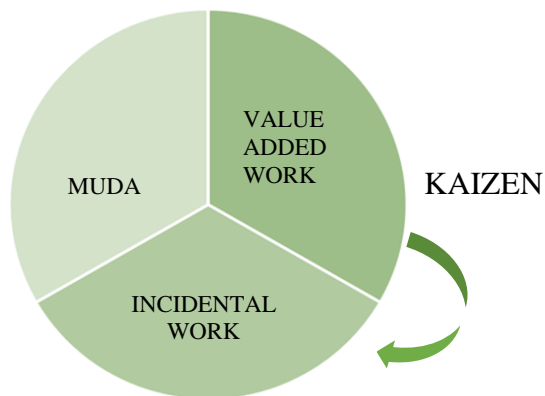
The lean practices are mostly related to the industrial sector, given that its first steps arise from the culture adopted by the Japanese company TOYOTA which aimed to apply improvements in the manufacturing plant through the Toyota Production System (TPS). But with the past of time, the lean practices had been implemented in the different areas of the business labors, trying to connect them all as a whole with the objective of effectiveness and optimization. In that sense, the resource-based view that contest that firm resources are closely intertwined with firms' capabilities (Grant, 1991) lead us to think that the implementation of lean practices and the business strategy goals are related as the following hypothesis states:

H2: *There is a positive relationship between business strategy goals and a firm's lean practices.*

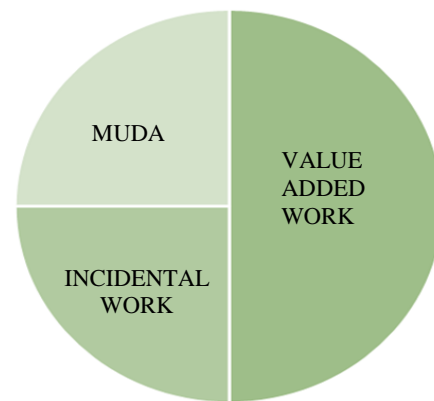
Following the definition of lean practices, it is important to bring one concept on the table, the kaizen methodology, as it is necessary for its success. Kaizen can be described as the continuous improvement of processes with the main purpose of identifying and reduce mistakes and waste on the different areas of the company's activities, not only the production.

About kaizen in the production, as stated by (Monden, 1998.) Its parts must be classified into three categories: incidental work, value-added work, and Muda. The first one is those processes or activities that don't add value to the product but are still essential for its production. The second one is, as its name established, those processes that add value to the product. And

finally, the Muda, those processes that don't add value and are unnecessary for the production. The kaizen method is focused on the reduction of incidental work and Mudas in production activity through different kinds of lean practices in terms of increasing the amount of value-added work. This point takes part in one of the 5 principles of kaizen, known as letting it flow.



Graphic 1: production process composition



Graphic 2: Increase of production process composition through Kaizen

As before mentioned kaizen must be implemented as a whole, so the Kaizen Institute (Kaizen Institute, 2020) presents five principles that companies must take into account: Know your Customer, Let it Flow, Go to Gemba, Empower People and Be Transparent. Know your customer presents the importance to understand the client's needs and interests in terms of upgrade his experience. Go to Gemba, means go to the places where the action is happening, so the whole context can be understood. Be Transparent and Empower people and speak respectively of working with real data and creating a proper work environment so the workers feel empowered to solve problems and be effective. Understanding the approach of the lean practice of empowering workers and as presented by (Ahman, 2017) the implementation of the lean practice requires respect for people, a long-term view, a level of patience and adaptably, a

focus on process and ability to understand the individuality in the development of each one. Thus, it is hypothesized that:

H3: *There is a positive relationship between human capital motivation and a firm's lean practices.*

4,4, PERFORMANCE MONITORING

The concept of performance monitoring is addressed to the fulfillment of the proposed objectives and goals of a company. It is a term applied to different workplace practices that seek to collect the employee work, machinery, and processes performance through the observation, examination, or recollection of data (Komaki, 1986).

. As stated by (P Hyland, 2009) Organizations need to measure their performance to identify problems along the way that can limit the achievement of a project's goals. In other words, the glue that holds everything together is the proper design of the performance monitoring structure while it is the key factor that leads managers and their employees to measure where and how far is the goal they must achieve.

Business strategy can only be successfully implemented if decisions made by all Levels of management throughout a business are aligned and coherent. The ability of a company to achieve this alignment is directly tied to the quality and breadth of available information and on the ability of the organization to use it effectively to make better decisions and continuously improve. (Khan, 2012) In that sense, a good structure performance monitoring system will be allowed greater synergy between the key drivers of the company that includes the internal and external challenges it must face, Thus, it is hypothesized that:

H4: *There is a positive relationship between the business strategy goals and a firm's performance monitoring*

Nowadays and thanks to the technological era the performance monitoring has been adapted to achieve the enhancement of the organization's capability to track the behavior and performance of its employees that with the support of the different indicators before mentioned. As presents (Larson J. R., 1990) the presence of a structured performance monitoring and the different necessary parameters for the monitoring influence the amount of effort that employees address to different activities. Thus the following hypothesis is presented:

H5: *There is a positive relationship between performance monitoring and a firm's human motivation*

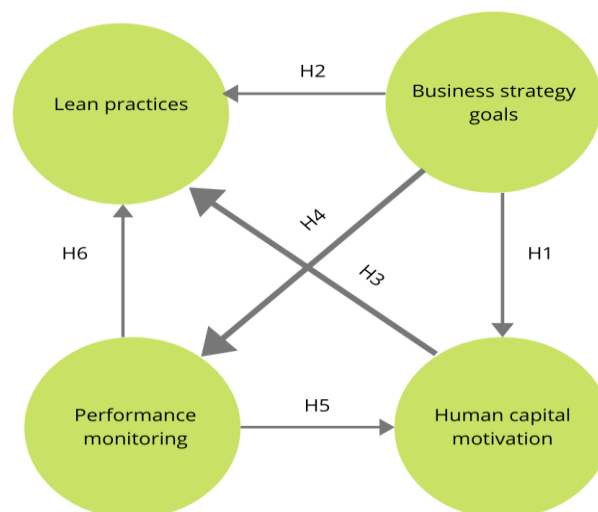
Moreover, the implementation of lean practices can increase the competitiveness of a company in the global context and the reduction of their processing times, meanwhile improving the quality of their products. It resulted in higher productivity, reduced lead time, improved first-pass correct output, reduced inventory, and space requirement. This is important as the three main drivers of lean practices are: first-pass correct output, reduced manufacturing lead time, and increased productivity. Studies reveal that a clear opportunity related to lean enterprise transformation exists in raising the maturity of these enterprises in understanding their current value streams and defining their future value streams (Vikram Sharma, 2015).

Additionally, lean practices have a direct impact on firm performance monitoring from various perspectives, as said by (Santa, Ferrer, Soosay, & Hyland , 2009), for the lean implementation to work it's necessary an inter-organizational integration, which means, the interrelation of the different process in the organization. That is to say that the business strategies

must impact the development of human capital and this, in turn, have to guarantee the right implementation of the lean practices, the above then, when the human capital is motivated tends to increase its efficiency and performance, reducing cost. However, it could only be achieved in presence of efficiency in the communication processes between the business strategy, the human capital motivation, and the lean practices, which must be also well monitored to conclude in an excellent performance on the organization. In a few words, the synergy between the four variables.

H6: *There is a positive relationship between performance monitoring and a firm's lean practices.*

Figure 3 illustrates the hypothesized relationships and the corresponding SEM model.



Graphic 3: Research Model with Hypotheses

5. 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. (Hair, Black, Babin, & Anderson, 2010) We use an innovative survey tool to collect management practice data from 179 medium-sized firms in Colombia and 1639 from the rest of South American countries. 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). 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. (Nachtigall, Kroehne, Funke, & Steyer , 2003)

6. 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 1.712 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. Besides, 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 0.065 and the maximum is considered to be 0.08 (Bentler, 1990)

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 1: Baseline comparisons

Model	Colombia					South America				
	NFI	RFI	IFI	TLI	CFI	NFI	RFI	IFI	TLI	CFI
	Delta 1	Rho 1	Delta 2	Delta 2		Delta 1	Rho 1	Delta 2	Delta 2	
Default	.848	.820	.931	.916	.929	.952	.943	.960	.952	.960
Saturated	1.000		1.000		1.000	1.000		1.000		<u>1.000</u>
Independent	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000

7. Results

The SEM findings are shown in the regression weights in Table 2 and the structural models in Figure 2. A high and significant relationship between Strategic Goals and Motivation of the Human Capital ($b=0.63$, $p>0.001$, Colombia, and $b=0.75$, $p>0,01$ South America) was found. This result demonstrates the view of Edith Penrose who defined firms as a "bundle of resources" emphasizing the importance of resources such as the human capital motivation for achieving superior business performance.

A low and insignificant relationship ($b=0.33$, $p>0.005$, Colombia, and $b=0.09$, $P>0.005$, South America) was found and therefore rejecting H2. In other words, we could say that in undeveloped countries the business strategies go against the lean philosophy since the determination of them is not routed to support the lean implementation as a whole. The success of the Lean implementation as presented by Al Balushi et al. (Al-Balushi, y otros, 2014) consists of connecting lean with the business strategies and guaranteeing an Organization's readiness. It results very important to take as an example the Asian countries, in which the lean practices had been successfully executed and to pay attention to what factors do impact it. What leads us to think that it must exist a connection between the government, the educational sector as Universities and the industries to create knowledge that can be applied in the business world, concept known as a triple helix.

Additionally, a very low and insignificant relationship was found between Human capital motivation and lean practices for Colombia ($b=0.02$, $p>0.05$). However, for the rest of South America H3 was accepted ($b=0.26$, $p>0.001$). With these results, we can say that there is a lack of knowledge in Colombia of how important it is to understand and implement a lean thinking perspective over the organization's activities. As Daniel T. Jones exposes in his book "lean thinking": "lean thinking gives a way of working with more satisfactory results because it offers immediate feedback that helps to convert the Muda into value, having the opportunity to create new jobs instead of destroying them in the name of efficiency". (T.Jones & James P.Womack, 2003) In that sense, human capital should be interested in the successful implementation of the lean practice methodology.

A strong and significant relationship between Business strategy goals and performance monitoring for both countries ($b=0.85$, $p<0.01$, Colombia, and $b=0.87$, $p<0.01$, South America)

was found, which supports hypothesis H4. The confirmed hypotheses can be validated by Michael Mankins and Richard Steele (Mankins & Steele, 2005, pág. 124) a disciplined planning and execution process minimized the probability of a shortfall on the performance, and in case of falling on one, increase the success of a corrective response. In that way, both countries the International Management practices are being well implemented.

A partially accepted relationship between performance monitoring and human capital motivation for South America ($b=0.14$, $p<0.001$, South America) and a low and insignificant relationship for Colombia ($b=0.15$, $p <0.005$, Saudi Arabia) was found, which goes against hypothesis H5. These results are important for both because it indicates that human capital in this region of undeveloped countries does not see any benefits that come with performance monitoring. This result leads us to think that there must be a change in the way continuing education is seen by the employees, perhaps there is a lack of communication between the industry and the universities and the information and training are not disseminated properly.

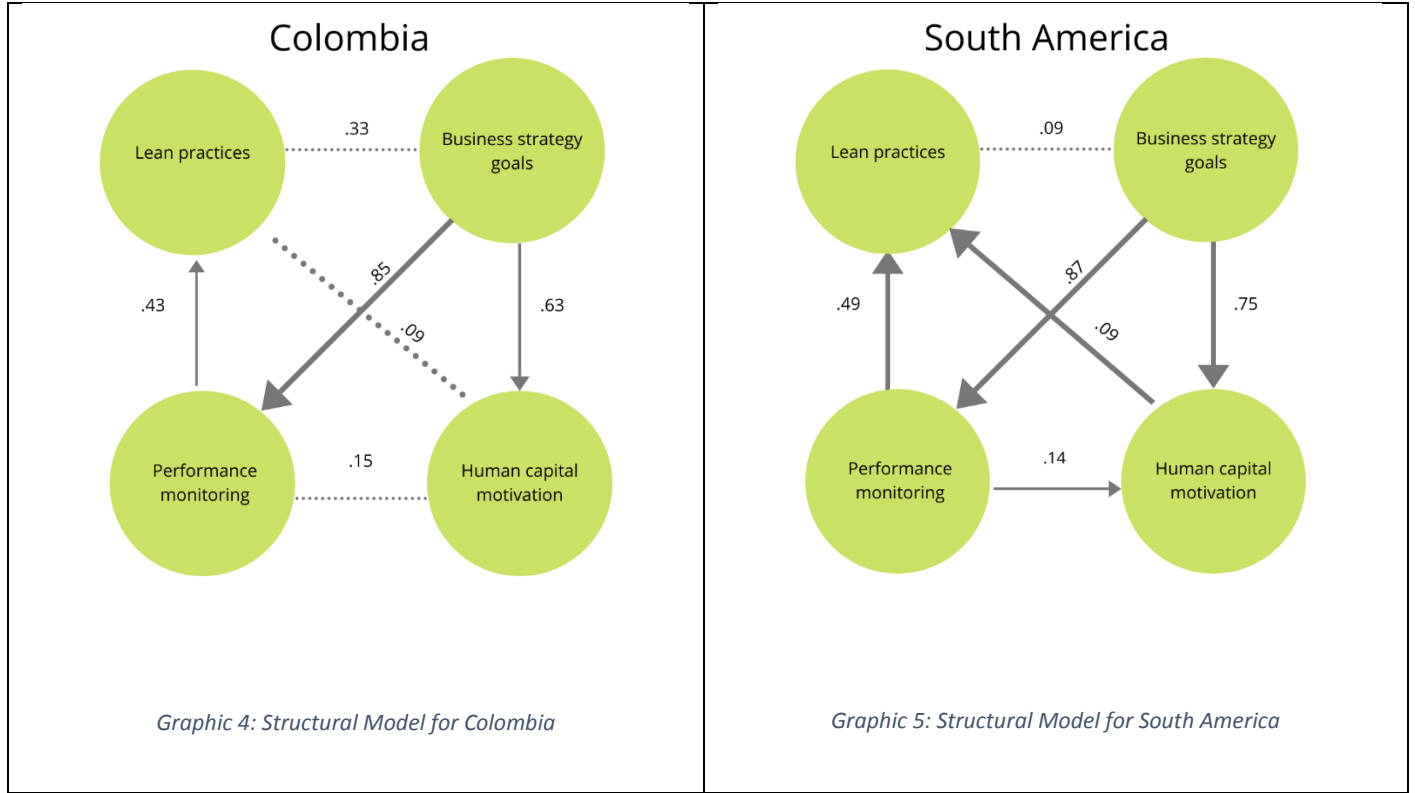
Finally, hypothesis H6, that there is a predictive relationship between performance monitoring and lean practices, was confirmed ($b=0.49$, $p<0.01$) for South America, and marginally confirmed for Colombia ($b=0.43$, $p<0.001$). Which implied that in Colombia are still factors that can be modified to accomplish a better operation of lean thinking through performance monitoring. Al Balushi et al (Al-Balushi, y otros, 2014) present the importance to establish measurement and a reward system linked to lean goals. In that way, the companies need to structure a system of measuring according to the lean objectives and kaizen principles so they can properly evaluate if the activities in an out the business are following the lean philosophy.

Table 2: Regression Weights: (Group number 1 - Default model) COLOMBIA

			Estimate	S.E.	C.R.	P	Label
perfmonit	<---	STRATGOALS	1.088	.145	7.529	***	H4-Accepted
motivation	<---	STRATGOALS	.533	.193	2.753	.006	H1-Accepted
motivation	<---	perfmonit	.101	.139	.727	.467	H5-Rejected
Lean	<---	motivation	.147	.192	.769	.442	H3-Rejected
Lean	<---	STRATGOALS	.434	.275	1.580	.114	H2-Rejected
Lean	<---	perfmonit	.447	.178	2.511	.012	H6- Partially Accepted

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

			Estimate	S.E.	C.R.	P	Label
perfmonit	<---	STRATGOALS	.915	.033	27.732	***	H4-Accepted
motivation	<---	STRATGOALS	.628	.054	11.661	***	H1-Accepted
motivation	<---	perfmonit	.109	.046	2.356	.018	H5- Partially Accepted
Lean	<---	motivation	.385	.087	4.442	***	H3-Accepted
Lean	<---	STRATGOALS	.114	.095	1.203	.229	H2-Rejected
Lean	<---	perfmonit	.577	.064	9.087	***	H6-Accepted



Structural Model for Colombia and South America

Notes:

Structural model. Notes : Significance values

- *** and thick line: a high significance at 0.001
- ** and thin line: less significance and partially accepted.
- n.s. and dot line: non-significant.

8. Discussion

The destiny of a country or a region is defined by the decisions that take place in the entire society including the citizens, the companies, the academy, and the government. (Santa, Morante, & Tagethoff, *Regiones inteligentes: La competitividad en el valle del cauca*, 2019)

Colombia and South America are part of an undeveloped region in which concepts as “smart regions” seeing as a way of business discovery in which all the dimensions collaborate in the creation of new and interactive processes that leads to new business opportunities are just recently being taking into account. (Markkula & Kune, 2015) In that sense, and having Colombia as a country with multiple challenges, it is expected that some of the hypotheses do not match with the theory.

However, we found that there is a positive relationship between the business strategy and the human capital motivation in both cases of study, meaning that the strategy made by the companies in both consider the human capital motivation as a key driver that would lead them to successful outcomes. In that sense, when planning the business strategy, it is important to implement a rewarding system to obtain higher motivation, which will increase the skills, capabilities, and disposition of employees to perform their duties and responsibilities successfully in line with the business strategy. It is clear for the decision-makers that the motivation of their employees could and will impact the results they are expecting to obtain.

The rejection of hypotheses H2 for both indicates a low understanding of concepts as the "triple helix" made by Porter in which he establishes the importance of a dynamic relationship between the government, the industry and the academy to create an architecture and productive structure that leads to the optimal conditions, predisposition, and incentives to advance in innovation and competitiveness. To say that there is a low relationship between the business strategy goals and the lean practice means that there is a missing connection and communication between the academy and the industry because lean practice is a method of doing more and more with less and less human effort, less equipment, less time and less space and at the same time getting to offers the clients what the truly are expecting. Perhaps, the information and the right

strategies to accomplish a lean practice and lean thinking and the benefits it could bring to the companies are not getting disseminated into the industry and so the plans they make do not consider it relevant.

Moreover, A study was undertaken in Colombia by Contreras et al., (Contreras, Barbosa , Juarez , Uribe , & Mejia , 2009) revealed that Colombians agree that an unequal distribution of power exists. Power in Colombia is held by a small percentage of the population. Molero. (Morelo, 1990) Concluded that countries with high power distance tend to have a culture based on a hierarchy where subordinates fear to communicate things and express themselves freely. (Varela, Salgado, & Lasio , 2010) Having these findings in mind it could explain why human capital motivation has not a significant relationship in this country with lean practices, hypothesis H3. A hierarchy culture tends to dismiss the intentions employees could have in the processes and a lean thinking point of view will not motivate the human capital because they do not see any benefits or consider themselves with no active role in the success of the company. Furthermore, to this matter, it results important to say that having found this lack of relationship between human capital motivation and lean practices any technological innovation made by the organization will fail in their purpose of obtaining better results with less effort. As R.Santa, P.Hyland and M.Ferrer said in their investigation “Technological innovation and operational effectiveness: their role in achieving performance improvements” (Santa, Hyland, & Ferrer): When a company implements new technologies to increase the lean practices and with so reduce the waste and reprocessing but the human capital is not able to absorb and implement them it will only result in a squandering of resources.

Besides, as the investigation from Ricardo Santa in his book "Regiones inteligentes: la competitividad en el Valle del Cauca” demonstrates that Colombia requires that the Government

promotes a paradigmatic innovation through the change of attitude on the importance of smart regions to start the transference of technology from developing countries successfully and as a result increase the role that human capital has by implementing a lean thinking perspective which philosophy requires respect for people, continuous improvement, a long-term view, a level of patience, a focus on process and ability to understand where the individual is in his or her development.

This study has also found that the human capital in both cases, tends to consider performance monitoring as a negative tool, resulting in H5 in a low or partially accepted relationship between them. The cultural behavior and the power distance concept might be one of the reasons causing employees to avoid or to have a negative perspective on control or note on their performance. As stated by Hofstede, (Hofstede, 2001) power distance is the way individuals unequally perceive the distribution of power. (House , Hanges, Javidam, Dorfman, & Gupta, 2006). The power distance indexes for Colombia and South America from Hofstede's insights score highly especially in comparison with countries such as Denmark (18) and Sweden (31) where the power distance index is low. In Colombia and South America, it is widely accepted that business leaders and people in high positions have the power and do not need to justify their actions. This leads to subordination and inequalities represented by prestige, status, and wealth. Based on their cultural behavior it is normal to obtain certain privileges derived from social status or job position creating the belief that performance monitoring is just a way of controlling them that does not imply any benefits to them.

Furthermore, according to the validation of H4, it is a good sign that Colombia and South America do understand the importance of the right determination and delimitation of business strategy to become positive results on the performance monitoring. Thus, in both of them, the

International Management practices are being implemented, as the accomplishment of the management processes and objectives of companies, which lead us to think that the business addressing in both cases is in a good scenario.

Finally, and despite the validation of hypothesis H4, the study revealed one weak point for Colombian Lean Management efforts, resulting in H6 as marginally accepted for the country. The synergy between the measurement system, the incentives, and lean implementation is a requirement for the success of the lean practice. As presented by Zhou Y (YJ & ZM, 2011) the Lean Management is considered an idea, an attitude, and a reflection of culture. The application of a new management strategy implied to change rooted habits and beliefs, which bring conflicts with the Organizational culture. In this sense, in terms to ensuring that innovation capabilities are developed within the company, in this case, scenario the implementation of lean practices, it is essential the presence of the interrelatedness of innovation competences, operational effectiveness and organizational process (Santa & Ferrer, The interrelatedness of innovation competences, operational effectiveness and organizational processes, 2012).

9. Conclusion

This study has shown us that whether Colombia and South America are trying to increase their share in the international market there still is a long way to go. Colombia needs to accomplish a better understanding of the benefits of a triple helix behavior in the culture. Nowadays the government, the industry, and the academy must work together to comprehend the actions that must take place to increase a successful outcome in the market.

The independent variables analyzed in this study are important determinants of the success a company will be able to reach. The difference in the positive relationships found in our analysis

for Colombia and South America could be explained by the fact that Colombia is a country which its economy is moved by the exports of commodities that leads to a "Dutch disease", meaning that the industry is being put beside and not getting the importance it should have to be competitive in the international world.

Concurrently, the findings also indicate that the importance of human capital in both regions is being taken into account related to the business strategy but a lack of understanding when it comes to monitoring their performance and their role with the lean practices. A less corrupted system in political, economic, and social aspects could decrease the fear of having an active role and will allow the creation and participation in innovative processes based on the evidence that lean thinking and lead practice will achieve a better result with less and less effort and time.

Additionally, the results reflected that the organizational culture in both cases, emphasizing the Colombian one, is exerting resistance to the implementation of lean practices. The dissociation between the lean implementation, human capital motivation, the business strategy, and performance monitoring may be one of the principal reasons for the lack of innovation capabilities in the Colombian Companies. In words of R.Santa, A. Scavarda, FZhao and H. Skoko, operational effectiveness is a result of a clear relationship between technology, human capital motivation, and the business strategies goals towards a lean practice purpose. (Santa, Scavarda, Zhao, & Skoko)

Thus, it presents itself the need for interrelatedness between the innovation competences, operational effectiveness, and organizational process of the companies. This implies that they must push through an exhaustive analysis of themselves to identify if their philosophy and characteristics go in the same direction as the Lean Thinking and its implications. Therefore, it would be easier to understand that the social, operational, economic, and cultural modifications

meanwhile the lean implementation, are the result of an innovative way of performing the original and main philosophy of the company. Turning the companies into more adaptable, resilient, and successful agents in face of the Lean Method and in the same way, because of it.

Finally, as closer and despite the existing limitations, the application of the Lean practice shows a potential opportunity for South America and Colombia to develop high-efficiency Companies, with a strong a philosophy of continuous improvement, innovation and high competitiveness that create value for the consumer and the human capital as well. Besides, it opens the door to break different paradigms on the Cultural Organization and to reflect on the role of Institutions, the government, and industry, as on the need for synergy between them to guarantee the competitiveness and success of the different sectors.

10. Bibliography

- Ahman. (2017). *Culture and Lean Manufacturing: Towards a Holistic Framework*. Selangor: International Journal of Business and Management.
- Al-Balushi, S., P.J. , S., A.S., S., A, A., Al Farsi, A., & R., A. (2014). *Readiness factors for lean implementation in healthcare settings- a literature review*. Journal of Health Organization and Management.
- Azi, K. (2015). *Application reality of knowledge management processes practice in leaning resources centres: case study of learning resources centres in Makkah al-Mukarramah schools in Saudi Arabia*. Jeddah: Jeddah, Saudi Arabia: International Conference on Communication, Management and Information Technology.
- Babalola, O., Eziyi O. Ibem, & Isidore C. Ezema. (2019). Implementation of lean practices in the construction industry: A systematic. *Building and Environment.*, 36.
- Becker, G. (1975). *Human Capital*. Chicago: University of Chicago Press.
- Becker, G. (1994). Underinvestment in college education? In Human Capital: A Theoretical and Empirical Analysis with Special Reference to Education. *The University of Chicago Press*, pp. 205-214.
- Bentler, P. (1990). comparative fit indexes in structural models. *Psychological Bulletin*, Vol 107, No.2, 238-246.
- Brahma, S. S., & Chakraborty, H. (2011). From industry to firm resources: resource-based View of competitive advantage . *The IUP journal of business strategy* , pp. VIII,16.
- Chaudhry, N., & Roomi, M. (2010). “Accounting for the development of human capital in manufacturing organizations: A study of the Pakistani textile sector” . *Journal of Human Resource Costing & Accounting*, Vol. 14 No. 3, pp. 178-195.
- Contreras, F., Barbosa , D., Juarez , F., Uribe , A., & Mejia , C. (2009). "leadership Styles, Organizational Climate and Psychosocial Risks in the Health Sector Agencies. A comparative Study. . *Acta Colombiana de Psicología*, Vol 12 no.2, 13-26.
- Crook, T., Todd, S., Combs, J., Woehr, D., & Ketchen, D. (2011). "Does human capital matter? A metaanalysis of the relationshi betwee human capital and firms performance. *Journal of Applied Psychology*, Vol,96 No.3, pp. 443-456.

- Grant, R. (1991). The resource-based theory of competitive advantage: Implications for strategy formulation. . *California Management Review*, 33 (3), pp. 114-135.
- Hair, J., Black, W., Babin, B., & Anderson, R. (2010). Multivariate data analysis: A global perspective. *seventh edn, Pearson, Upper Saddle River, New Jersey*.
- Harrison, G. (1992). The cross-cultural generalizability of the relation between participation, budget emphasis and job related attitudes”. *Accounting, Organizations and Society, Vol. 17 No. 1*, pp. 1-15.
- Hofstede, G. (2001). Culture's consequences: comparing values, behaviors, institutions, and organizations across nations. *Sage publications*.
- House , R., Hanges, P., Javidam, M., Dorfman, P., & Gupta, V. (2006). Culture, Leadership, and organizations: the Globe study of 62 societies (G.L and O.B.E.R Program., Ed). *Sage publications*.
- Joseph C. Chen, Y. L. (2010). *International Journal of Production Research*. Iowa: Taylor & Francis Group.
- Kaizen Institute. (2020). *Definition of Kaizen*.
- Katzell, R. A., & Thompson, D. E. (1990). Work motivation: theory and practice . *American Psychologist*, 45, 144-153.
- Khan, Y. (2012). Khan, Y. (2012). Developing and Implementing a Comprehensive “Management Operating System” is the Key to Successful Execution of Business Strategy and Goals. . *Credit Control*,33(5/6), pp. 46-51.
- Komaki, J. L. (1986). Development of an operant-based taxonomy. *Journal of Applied Psychology*.
- Larson, J. R. (1990). Performance monitoring: how it affects work productivity. *Journal of Applied Psychology*.
- Mankins, M. C., & Steele, R. (2005). *Turning Great Strategy into Great Performance*. Harvard Business Review.
- Markkula, M., & Kune, H. (2015). Making Smart Regions smarter: smart specialization and the role of universities in regional innovation ecosystems. *Technology Innovation Management Review*, 5(10), 7-15.
- Monden, Y. (1998.). *Toyota Production System: An integrated approach to just-in-time*. Norcross: Engineering and Management Press.

- Moose, R. (1996). *Performance Monitoring Indicators Handbook*. Washington: Word Bank Technical Paper No. 334.
- Morelo, F. (1990). Cultura y liderazgo: una relacion multifacética Boletín de Psicología. *Smith y Bond* .
- Nachtigall, C., Kroehne, U., Funke, F., & Steyer , R. (2003). why should we use SEM? pros and cons of structural equation modelling. *methods of psychological research, vol 8 no.2*, 1-22.
- O'Reilly, C., Chatman, J., & Cadwell, D. (1991). People and organizational culture: A profile comparison approach to assessing person-organization fit". *Academy of Management Journal, Vol. 34 No. 3*, pp. 487-516.
- P Hyland, M. F. (2009). Performance measurement and feedback in a public sector program. *School of Management, University of South Australia*.
- Penrose, E. (2009). The theory of the growth of the firm.. *New York, NY: Oxford University Press*, p. 19.
- Porter , M. (1991). Towards a dynamic theory of strategy . *Strategic Managment Journal* , 95-117.
- Santa, R., & Ferrer, M. (2012). THE INTERRELATEDNESS OF INNOVATION COMPETENCES, OPERATIONAL EFFECTIVENESS AND ORGANIZATIONAL PROCESSES. *Review of Management Innovation & Creativity* .
- Santa, R., Ferrer, M., Soosay, C., & Hyland , P. (2009). THE CRITICAL COMPETENCES NEEDED FOR INNOVATIVE. *Continuous Innovation Network (CINet)*.
- Santa, R., Hyland, P., & Ferrer, M. (n.d.). Technological innovation and operational effectiveness: their role in achieving performance improvements-. *Production Planning & Control 25(12)*, 969-979.
- Santa, R., Morante, D., & Tagethoff, T. (2019). *Regiones inteligentes: La competitividad en el valle del cauca*. cali: Cali: Escuela Militar de Aviación "Marco Fidel Suarez" (EMAVI) y Editorial Universidad Icesi.
- Santa, R., Scavarda, A., Zhao, F., & Skoko, H. (n.d.). Managing the operational effectiveness in services using technological innovation . *international Journal of E-Business Management 5(1)*, 16.

- Suryana. (2003). Entrepreneurship Practical Guide, Tips and Process to Success. . *Dynamic Capabilities and Strategic Management Journal*, Vol 18, No.7, 509-533.
- Swanson, R. (2001). "Human resource development and its underlying theory". *Human resource development International* , pp. 299-312.
- T.Jones, D., & James P.Womack. (2003). *Lean Thinking: como utilizar el pensamiento lean para eliminar los despifarros y crear valor en la empresa*. Gestion 2000.
- Thompson, R. K. (1990). Work motivation: theory and practice . *American Psychologist*, 45, 144-153.
- Varela, O., Salgado, E., & Lasio , M. (2010). "The meaning of job performance in collectivistic and high power distance cultures: Evidence from three Latin American countries. . *Cross Cultural Management: An International Journal*, , Vol 17, No. 4,, 407-426.
- Vikram Sharma, A. R. (2015). *Impact of lean practices on performance measures in context*. Journal of Manufacturing Technology Management.
- Vroom, V. (1964). *Work and motivation* . New York: Wiley.
- Wind, J. Y., & Main, J. (1998). Driving Change . *New York: The free Press*, p. 9.
- YJ, Z., & ZM, Z. (2011). *Promotion of lean management of hospital human resource*. China Medical Herald.