







competitive advantage over time. Such a position is justified in the fact that the effects that the implementation of proactive guidance can have on the costs of the company and the inherent risks of a change in the organizational strategy are unknown.

Despite this, the proactive orientation towards the market may have drawbacks as a consequence of a saturation effect, which is caused by the high risk that is assumed by the company due to the excessive investment in non-developed potential markets, where knowledge and information have a high degree of inefficiency (Atuahene-Gima, Slater and Olson, 2005); that implies an additional effort by the company to adapt and adjust its organizational structure (Boumgarden, Nickerson and Zenger, 2012), increases uncertainty, generates costs, and limits the competitive advantage (Osorio, 2016).

Taking into account that the proactive orientation towards the market (Narver and Slater 1990; Kohli and Jaworski 1990; Cadogan and Diamantopoulos 1995), is one of the ways that allow companies to internationalize, and knowing that the greater the degree of novelty of the innovation, the more efficient the penetration of the markets (Guzmán and Martínez 2014), in this investigation it is corroborated that these two variables have a positive influence on the exporting intensity.

### **3. Hypothesis**

Although the selection of markets where companies wish to export sometimes does not depend on decisions planned by the management of the company, but responds to specific requests from a foreign importer (Uribe et al. 2013), the companies that plan it show greater proactivity in the development of external activities, exerting a positive influence on the exporting result (Cadogan and Diamantopoulos 1995).

For this reason, and taking into account the desired objective, the following hypothesis were proposed:

H<sub>1</sub>: The companies that plan their external activities, that is, with a proactive orientation towards the market, are those that have a greater exporting intensity.

Given the high competitiveness in international markets, having a differentiating product that meets the needs that are required by external and avant-garde demand facilitates the competition in these markets, for which reason the hypothesis is established:

H<sub>2</sub>: The degree of novelty of the innovation has a positive effect on the exporting intensity.

The development of innovative products to enter international markets is one of the main strategies of proactive orientation towards the market given the intention to satisfy the consumer and the use of the best knowledge, financial, human, and technological resources (Cadogan and Diamantopoulos 1995), for this reason the following hypothesis is established:

H<sub>3</sub>: The positive effect that the degree of novelty of innovation exerts on the exporting intensity of the company is stronger when the company has a proactive orientation towards the market.

### **4. Methodology**

The data to test the hypothesis of the research were obtained from a sample of Colombian manufacturers from the Second Survey of Development and Technological Innovation, conducted by the National Administrative Department of Statistics (DANE by its abbreviation in Spanish) in Colombia. The survey seeks to establish the dynamics of technological development of the Colombian manufacturing company in terms of the intensity and trajectory of the innovation and technological development activities. The DANE applied a census to 6,670 small, medium, and large companies, distributed in 66 sectors to 3 digits according to the Code of the Uniform International Industrial Classification (CIU by its abbreviation in Spanish), grouped into 25 groups taking into account the similarity of the economic activity described by this code (Losada-Otálora and Zuluaga 2012).

The data obtained were evaluated with the SPSS V18 tool. The methodology of the research is mixed, with an exploratory, descriptive, and experimental scope.

#### **4.1. Characteristics of the sample**

From the total number of companies consulted, there were 297 from different sectors that responded to the survey and provided their information for the study. When debugging the data for statistical reasons in order to guarantee the completeness of the information, we worked with a valid sample of 75% of the companies, corresponding to 223 companies.

## 4.2. Variables

Due to the type of dependent variable, an ordered logistic model was chosen, since the dependent variable is qualitative.

### 4.2.1. Dependent variable

Exporting intensity: in order to capture the information of this variable, managers indicate the increase percentage in their sales due to innovations undertaken during the last year, listing from 1 to 6 as shown in table 1.

**Table 1.** Increase in exports in the last year

GROWTH PERCENTAGE INTERVAL	SCORE
0%	1
1-5%	2
6-10%	3
11-15%	4
16-20%	5
More than 20%	6

**Source.** Prepared by the authors based on the questions of the instrument.

### 4.2.2. Independent variables

a) Degree of novelty of the innovation: the valuation of this variable seeks to answer the question of how much novelty innovation contains. The innovations were classified into radical and incremental. Radical innovations also called basic, primary, or total, refer to totally new products or processes, since they present significant differences in terms of their purpose, benefits, characteristics, theoretical properties, raw materials, or components used in their manufacture.

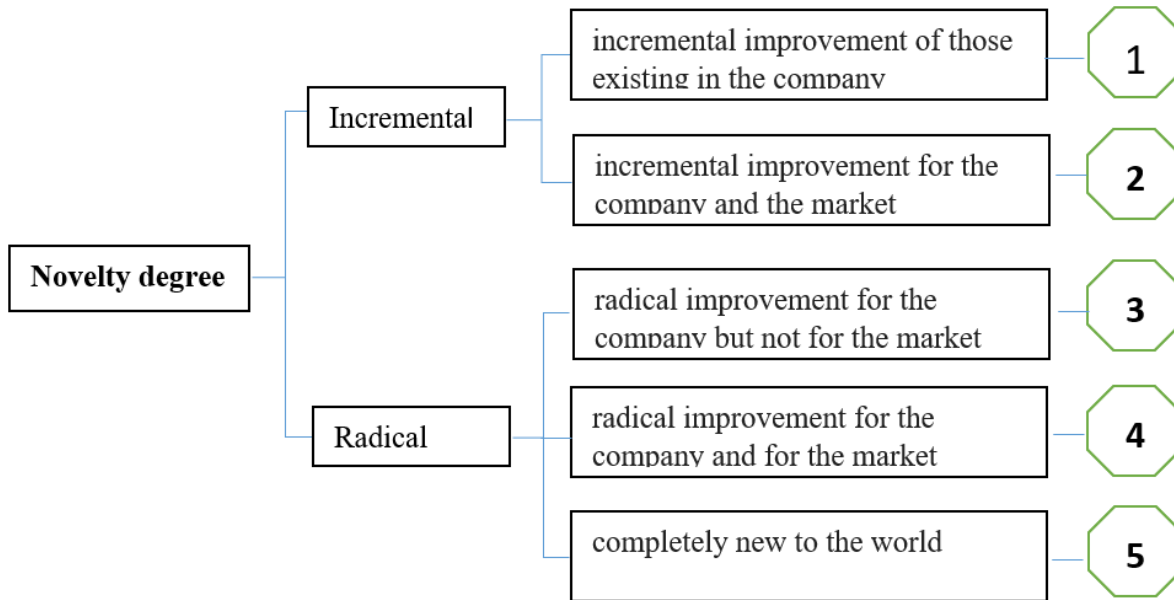
Radical innovations are those that involve the introduction of a product or process into the market that unbalance the global market, that are totally new and present significant differences with existing products in terms of the purpose, characteristics, and elements. It is a product with a high technological component that generates crucial changes in the industry (Dahlin and Behrens 2005).

Incremental innovations, known as partial, progressive, or secondary, are improvements in existing products or processes and provide less novelty (Guzmán and Martínez 2014).

In order to capture the information of this variable, the identification of five criteria of the radical and incremental degree of novelty was used, as shown in figure 1. Taking into account that it is a qualitative variable, it is given the treatment of a variable dummy<sup>2</sup>, obtaining 4 variables as a result: *gradonovedad1*, *gradonovedad2*, *gradonovedad3* and *gradonovedad4*.

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<sup>2</sup> they are qualitative variables, also known as indicative, binary, categorical, and dichotomous. They can only assume the values 0 and 1



**Figure 1.** Classification of the degree of novelty of the innovation  
**Source.** Prepared by the authors.

b) Proactive orientation towards the market: Innovation in the markets consists of creating, expanding, or segmenting the sales markets, and creating or improving the sources of supply of raw materials and products. Market innovations require substantial organizational changes in companies.

The scale that was used to measure the proactive orientation towards the market consists of 8 items (table 2) that are quantified according to a Likert-type scale, which ranges from 1 to 7, considering 1 = strong disagreement, and 7 = strong agreement. Their items showed an adequate descriptive capacity. Cronbach's alpha coefficient was 0.81, which means that the instrument that was used is reliable and valid, calculated as shown below:

$$\alpha = \frac{K}{K-1} * \left| 1 - \frac{\sum V_i}{V_t} \right| \quad (1)$$

- $\alpha$  : Cronbach's Alpha Coefficient
- $K$  : number of items
- $\sum V_i$  : summation of individual variances
- $V_t$  : total variance
- $\left| 1 - \frac{\sum V_i}{V_t} \right|$  : absolute value of one minus the division between the sum of the individual variances and the total variance

$$\alpha = \frac{8}{8-1} * \left| 1 - \frac{12,68}{44,6} \right| = 0,8180$$

Table 2 contains expressions that reflect the degree of orientation that the company has towards the market.

**Table 2.** Proactive orientation towards the market

<b>QUALIFIED AFFIRMATIONS</b>	
1	We continually intend to discover the additional needs of our clients, even those that they are not aware of.

- 2 In our new products and services, we incorporate solutions to the needs of our clients that they were not expecting.
- 3 We look for new ways in which our customers use our products and services.
- 4 We innovate even at the risk of making our own products obsolete.
- 5 We look for opportunities in areas where our clients find it difficult to express their needs.
- 6 We work closely with our leading users, who try to recognize the needs of buyers months or even years before most competitors.
- 7 We extrapolate key trends in order to gain insight into what current markets will need in the future.
- 8 We help our clients anticipate trends in their markets.

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**Source.** Prepared by the authors based on the questions of the instrument.

#### **4.2.3. Control variables**

The characteristics that were chosen as control variables have been selected from different investigations in order to establish patterns of innovation. The most common typologies are age, size, productive sector, technological intensity, financial solvency, degree of internationalization, business group, family property, and inter-company and institutional cooperation in R & D.

It is essential to have some control variables as a differentiating component to establish if the exporting intensity depends on them. The characteristics that were chosen are the size of the company and its experience measured in the time that it has been constituted (age).

a) Size of the company: The size of the company influences the resources that are available for innovation (Uribe, Rialp, & Lonch, 2013). Eusebio and Llonch (2006) examine several studies about the determinants of exporting intensity published between 1994 and 2002, and based on these works they conclude that there is a certain linearity between the size of the company and its growing exporting activity. This allows to include the size of the organization as a control variable.

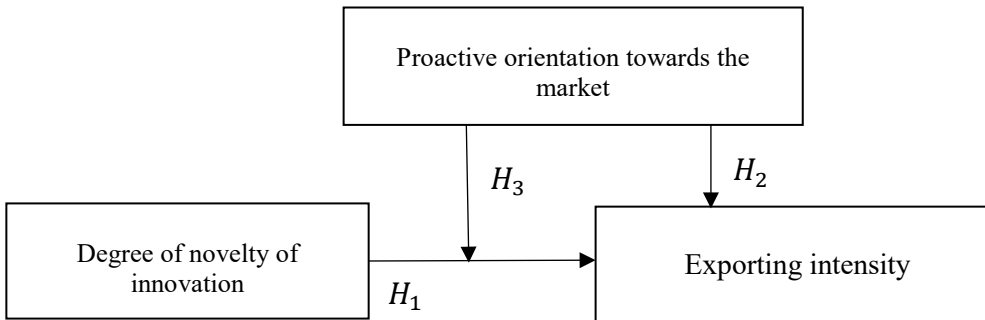
b) Age: Seniority is related to accumulated experience and knowledge (Eusebio and Llonch. 2006). As companies internationalize and develop proactive strategies, they accumulate experience, therefore, to check if the accumulation of knowledge facilitates export, the age control variable is included in the model.

Due to the fact that the database does not include the variable of the number of years that the company has been exporting, which provides the years of experience that the company has in internationalization activities, age (the number of years that the company has been constituted) is used as a control variable (Uribe et al. 2013).

#### **4.3. Explanatory model of exporting intensity**

The research starts from the theories of proactive orientation towards the market to explain the internationalization of companies through exporting intensity. Similarly, it is exposed how the degree of novelty in innovation, by means of radical and incremental innovations, can contribute to the penetration in foreign markets, this with the purpose of analyzing if the database meets the assumptions found in the theory through the verification and explanation of hypotheses.

Two of the hypotheses seek to measure the relationships between the proactive orientation towards the market and the degree of novelty of innovation with the exporting intensity, respectively. The third hypothesis aims at explaining the moderating effect of the proactive orientation toward the market on the degree of novelty of innovation in order to evaluate the positive effect on exporting intensity (Figure 2). In addition, two variables of control of the characteristics of the companies are used; age, seen as the years that the company has been established, which allows the company to accumulate experience and knowledge, and size, measured with the number of employees in the organization.



**Figure 2.** Explanatory model of exporting intensity  
**Source.** Prepared by the authors.

#### 4.4. Statistical treatment of the data

Due to the fact that the dependent variable, export intensity, is qualitative and ordered for the statistical treatment of the data, ordered logistic regression was used.

The logistic regression analysis is a statistical analysis method that allows describing the relationship between a set of independent variables and a qualitative dependent variable, which describes a non-quantitative characteristic of an individual, company, city, among other actors (Wooldridge 2009). In this case, the dependent variable is measured from 1 to 5 as a percentage growth interval for exports in the last year (Table 1).

The ordered logit analysis describes the association between the degree of novelty of innovation and the proactive orientation towards the market, in relation to the growth in exporting intensity.

As the main objective is to know the relationship between the model variables, the proactive orientation towards the market, and the degree of novelty of the innovation in the exporting intensity, and to know if there is enough evidence to support the formulated hypothesis, the model is built incorporating the direct effects of the independent variables.

When running the regression, no significant variables are evident (Table 3), for this reason, a debugging process is carried out, which means a stepped elimination of each of the general variables along with their related variables, according to their level of significance.

In the procedure by phases, the least significant variable is chosen step by step in order to exclude it, running again the regression until finding the significant variables that fully explain the relationship between the independent variables and the export intensity, independent variable.

In the first phase, the least significant variable is excluded from table 3, which corresponds to the variable *gradonovedad3* together with its related variables. The model is run and it can be seen that the remaining variables are still not significant. By continuing with the process by phases, the direct and related variables of *gradonovedad4*, *gradodenovedad1*, and *gradodenovedad2* are excluded step by step and in order, finally leaving the variables that really influence the exporting intensity, as shown in table 4.

It is concluded that, indeed, for the selected sample of companies, there is a relationship between the proactive orientation towards the market and the exporting intensity, that is to say that there is evidence to affirm that the  $H_1$  is true.



**Parameter estimates**

		Estimate	Error típ.	Wald	gl	Sig.	Confidence interval 95%	
							Lower limit	Upper limit
Threshold	(intenexport=1)	-,945	4,615	,042	1	,838	-9,989	8,099
	(intenexport=2)	,721	4,572	,025	1	,875	-8,240	9,682
	(intenexport=3)	2,848	4,571	,388	1	,533	-6,111	11,808
	(intenexport=4)	5,422	4,586	1,398	1	,237	-3,566	14,410
Location	Age	,009	,007	1,696	1	,193	-,005	,023
	Size	,001	,000	3,016	1	,082	-7,044E-5	,001
	Orienproact	,196	,298	,432	1	,511	-,388	,780
	Gradonovedad1XOrienproact	,100	,452	,049	1	,825	-,785	,986
	Gradonovedad2XOrienproact	,317	,453	,489	1	,485	-,571	1,205
	Gradonovedad3XOrienproact	-,270	,434	,388	1	,534	-1,121	,581
	Gradonovedad4XOrienproact	0 <sup>a</sup>			0			
	(Gradonovedad1=,00)	,959	2,517	,145	1	,793	-3,974	5,892
	(Gradonovedad1=1,00)	0 <sup>a</sup>			0			
	(Gradonovedad2=,00)	2,231	2,472	,815	1	,367	-2,614	7,076
	(Gradonovedad2=1,00)	0 <sup>a</sup>			0			
	(Gradonovedad3=,00)	-,291	2,403	,015	1	,904	-5,002	4,419
	(Gradonovedad3=1,00)	0 <sup>a</sup>			0			
	(Gradonovedad4=,00)	0 <sup>a</sup>			0			
	(Gradonovedad4=1,00)	0 <sup>a</sup>			0			

Link function: Logit

a. This parameter is set to zero because it is redundant

Instead, the degree of novelty of innovation is not related to exporting intensity.

**Table 3. Model 1**

**Source.** Prepared by the authors using the Software Statistical Package for the Social Sciences (SPSS).

As shown in table 4, the size of the company and the proactive orientation towards the market are significant.

**Table 4. Final model**

**Parameter estimates**

		Estimate	Error típ.	Wald	gl	Sig.	Confidence interval 95%	
							Lower limit	Upper limit

Threshold	(intenexport=1)	-2,677	1,049	6,518	1	,011	-4,733	-,622
	(intenexport=2)	-,931	,833	1,248	1	,264	-2,563	,702
	(intenexport=3)	1,233	,802	2,327	1	,127	-,348	2,794
	(intenexport=4)	3,459	,832	17,309	1	,000	1,830	5,089
Location	Age	,005	,006	,710	1	,399	-,007	,018
	Size	,001	,000	6,237	1	,013	,000	,001
	Orienproact	,335	,142	5,557	1	,018	,056	,613

Link function: Logit

Source. Prepared by the authors using the SPSS.

The global test of the model is significant, which expresses that at least one of the variables explains the model (Table 5).

**Table 5.** Global test of the model - **Information on the adjustment of the models**

Model	-2 log of verisimilitude	Chi-square	gl	Sig.
Only intersection	589,793			
Final	571,374	18,419	3	,000

Link function: Logit

Source. Prepared by the authors using the SPSS.

## 5. Analysis and results

When analyzing the database, it can be seen that, although the tool that was used to capture the data of the dependent variable, exporting intensity, has six interval ranges of percentage growth of exports (table 1), there is no company in which the increase in its exports was higher than 20% during the last year, which means that there is no data in range number six of this variable.

In the data of the independent variable proactive orientation towards the market, something similar happens. This variable is made up of 8 items with a Likert scale, however, it can be seen that there are no values in the database in the last item, meaning that no company helps its clients to anticipate trends in their markets.

On the other hand, when analyzing the age and size variables, we can appreciate the great variety of companies that the database contains. The company that has the shortest constituted time is 2 years, while the company that has been on the market the longest is 127 years old. In the same way, it happens with size, there are small, medium, and large companies. The company with the smallest number of employees is 3 and the largest number is 7,000.

After using the SPSS<sup>3</sup> tool for the analysis of data through the construction of an ordered logistic model, it is concluded that there is indeed a relationship between the proactive orientation towards the market and the export intensity, that is to say that there is evidence to claim that  $H_1$  is true. On the other hand, the degree of novelty of the innovation is not related to the exporting intensity, which means that it can not be sustained that  $H_2$  and  $H_3$  are true.

This presents a scenario that allows us to determine that the proactive orientation towards the market is a determining force when a company seeks to find the strategies that allow it to venture with greater possibilities of success in the exporting activities. The above does not mean that this is the only decision to boost exports, it can only be determined that it does influence, unlike innovation, which is not defined as one of the determinants of exporting intensity.

<sup>3</sup> SPSS® statistical software developed by IBM. Abbreviation from Statistical Package for the Social Sciences

## **6. Conclusions**

The main motivation of this research was to empirically prove, by means of the application of an ordered logistic model to 297 companies, that what is found in the literature on the support that the proactive orientation towards the market offers to the companies in order to have an efficient internationalization through exporting growth, is applied in all cases. In the same way, to confirm if an even greater effect was obtained together with the degree of novelty of innovation.

The evidences found in the study allow to conclude that indeed there is a relationship between the proactive orientation towards the market, and that there is no relation with the degree of novelty of the innovation.

In order to continue with the studies on the internationalization of companies, taking into account the proactive orientation towards the market as one of the main determinants, it is important to carry out the empirical analysis in homogeneous companies, that is to say that they must have similar characteristics in terms of size, age, type of innovation, among other factors, preferably in specific sectors of the industry.

On the other hand, subsequent studies may inquire about other institutional conditions that contribute to the development of the capacities of an organization to create the conditions that favor exporting, in such a way that, in a synergistic manner, companies can undertake effective strategies that allow them to be included in international markets.

## **7. Limitations**

One of the limitations of the study was the impossibility of having data from homogeneous companies in terms of size, the geographical location where they are located, and the type of innovation.

In most of the studies where we want to make inferences about the behavior of companies, organizations are reclassified into micro, small, medium, and large companies, with the aim of reaching explanations or predictions, depending on the case, not only for the specific sample but of the population, facilitating the execution of the same exercises in other regions, countries, or industries.

It is important to know the type of innovation since it is not the same to make a technological innovation, necessary to make innovation in products or processes, or an innovation of the non-technological type, such as organizational or administrative changes within a company. In addition, innovation can also be in scientific, financial, or commercial activities, among others, or a combination of some or both.

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