EFFECTS OF STRATEGIC PLANNING ON THE OCCUPATIONAL HEALTH & SAFETY PERFORMANCE OF SMALL COMPANIES

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Abstract

A key element in terms of the OSH performance is mainstreaming OSH into the whole enterprise activity. This has been recognized and established as the challenge of the companies in this field. From the official OSH agencies have been numerous actions, policies, campaigns, programs which promote this. Moreover, the lack of integration of OSH into the core business activity is considered as the largest handicap, in order to progress in this field, in the countries in which have been implemented OSH normative for years. This advance in OSH supposed a challenge for companies, and this is larger in the case of small businesses due to their resources constrains. Therefore, mainstreaming OSH into a business involves many implications, among them the review of company policies in cases that do not count on OSH as a constant element to take into account.

As a consequence, in response to this summon, I consider of great interest to identify and examine differences between companies in terms of their policy approach and the scenarios in which this integration is required. Basing on the logic that is easier integrate similar positions than divergent ones, I will try to explore possible affinities between business strategies and occupational risk prevention and strategic value of a company. Beyond this affinity I purpose to investigate some possible effects in relation to OSH perception and performance.

Thus, depending on the results of this research we can glimpse some clues that allow us to better understand the characteristics and challenges involved in the process of mainstreaming OSH into a whole business activity and structure in function to the strategic business model.

Keywords

OSP -> Organizational Strategic Planning

OSH -> Occupational Health and Safety

SB -> Small Business.

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Introduction

Current literature usually searches the effects of formal strategic planning on financial performance and has tried to find the strategic planning systems characteristics. In many cases, it has been demonstrated that the type of strategy used by a company makes a considerable difference to performance, but most of these studies measured performance attending to growth in sales/revenue and according to return on assets and investment. The objective of this study is to investigate if the organizational strategy plays an important role in explaining OSH performance as it plays in terms of financial performance. The positive association between planning and performance has been investigated, but not the effects of the different organizational strategies on occupational health and safety management and performance.

The proof of associations between OSH and overall organizational performance is not trivial. Therefore, there is still only a limited theoretical understanding of OSH business cases. However, I consider that if there is a relationship between organizational strategy planning and value given to OSH management, this link would be fundamental to explain how firms perform in OSH.

When we mention strategic planning, we tend to think about larger companies with different departments and enough resources to develop an extending occupational health and safety system. But these are some kind of idealistic macros and reality shows a completely different scenario. Thus, this paper is focused on small firms with 50 employees or less, frequently referred to as small-size businesses (SBs); because further than these represents the large majority of firms, these are less influenced, either by the social or by normative pressure.

The small business owners usually carry a heavy load and are often responsible for all management issues, but they are ultimately responsible for the safety in their workplace and need to research the legal OHS requirements that apply to them. Unions play a significant role in the development of workplace OHS systems: they support their members, engage in health and safety education and training, represent labour in multipartite deliberations, advocate for system change and so on. Typically, the level of unionization in SBs is low, with a corresponding likelihood of irregular norms and standards, and greater imbalance of power between labour and management. The absence of unions in whole sectors dominated by SBs may explain in part their low levels of health and safety knowledge and training, and the prevalence in SBs of "improvised" health and safety measures (Eakin et al., 2010).

These small enterprises have their own characteristics and the models developed for larger corporations have proved to be ineffective. Due to resource constraints, smaller businesses are especially vulnerable to environmental conditions and have all helped to ensure that they

have been left more or less to their own means in terms of occupational safety (Fonteyn et al., 1997; Gardner et al., 1999; Mayhew, 1997).

There were almost three million "small" businesses" in Spain in 2012, which represents 99'3% of Spanish companies (DIRCE[1], 2012). These enterprises, defined as those employing less than 50 people, include over 6 million workers, in other words, 47'7% of the labour force. An annual report on EU Small and Medium sized Enterprises reflects that 98'7% of European companies belongs to this type of firms (SBs), employing 50'2% of workers in EU.

However, despite of the economic importance and the number of employees involved, SBs have not received the corresponding attention from occupational health and safety (OHS) in the past.

Studies of management style prevalent in small firms show significant associations between OHS management and firm characteristics. Managers play a key role in shaping an organization's OHS system. For instance, management commitment to health and safety has shown to have a significant relevance regarding several safety outcomes (Barling et al., 2002; Cohen, 1977; Cooper and Phillips, 2004; Glendon and Litherland, 2001; Siu et al., 2004; Zohar and Luria, 2005). Some researchers suggest that smaller firms could have more safety problems than larger companies due to inferior management of risk (Holmes, 1999). It seems that employers of SBs tend to think that risk control is the responsibility of individual employees rather than the employer or the company management system (Eakins, 1992). Furthermore, SBs use to have less resource for designing and managing safety programs (Wilson and Koehn, 2000).

As theoretical framework, any attempt to study the organizational planning of SBs is rather difficult because their contexts are highly complex and changeable. I used an empirical application of the Miles and Snow (1978) model of organizational strategy, structure and process to the OSH performance. This model deals with patterns in the behaviour of organizations which can describe and even predict the process of organizational adaptation, taking into account the interrelationship among strategy, structure and process. Miles and Snow state that organizational strategies in any sectors fall into a small number of ideal types. I have chosen this perspective because it allows us to analyse a company as an integrated and dynamic whole-system. Besides, considering that occupational health and safety management demands a constant adaptive process, I propose this model as adequate to investigate how each type of "ideal" organization, typologies by Miles and Snow, performances in relation to OSH performance.

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[1] DIRCE: Directorio Central de Empresas.

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Literature Review

The literature focusing on small firms has increased substantially in the last decades. Most reported research has dealt with problems and difficulties faced by owners of small businesses (Scase & Goffee, 1989; Stanworth & Gray, 1991). Small companies are considered hard to reach in terms of health and safety regulations and service and the methods developed for large companies cannot be implemented in smaller ones.

Defining what is meant by a "small business" is challenging because of the diversity of such businesses and the range of possible factors to consider in order to define them. Quantitative definitions of small business focus on defining businesses by numerical factors, particularly by monetary values or by the number of people employed by the business. The most popular way of quantifying a small business, which is easiest to use in surveys and research, is by the number of people employed by a business. Typically, definitions are based on the number of staff employed on a full-time basis. Defining small business according to the number of people employed by a company is the most suitable and pragmatic approach, as it is the best "proxy" for the differences that occur in the way firms of different sizes operate (Massey, 2005).

Larsson (2003) contends that there is no real proof that the size of an enterprise in itself is an important factor for OHS activities. However, this proposition is contradicted by a number of studies (Champoux and Brun, 2003; Eakin et al., 2000; Hasle and Limborg, 2006; Lentz and Wenzl, 2006; Okun et al., 2001).

Hasle and Limborg elaborated an interesting review of literature on preventive OSH activities in small enterprises in 2005. They took 366 references from international databases as the most representatives and they read and assessed them. Taking this review into account, we can observe the following:

-The risk is higher, and the ability to control risk is lower in SBs. There is strong evidence for high risk accidents in small companies, and especially for fatal and other serious accidents and they have difficulties in controlling risk due to limited human and economic resources.

-The owner-manager is the key person. Owner is emphasized to be the dominant actor in relation to any changes made in small companies. The personal values and priorities of the owner are determinants of the attitude of the enterprise. It is crucial to recognize the position of the owner in order to develop an approach which can foster successful preventive strategies.

-They have difficulties in fulfilling the requirements as regards the organization of health and safety activities. They tend to see regulation as a financial burden.

These previous studies suggest that small firms have problems related to the limited access to human, economic and technological resources. Then, taking into account this scarcity of resources that can invest on OSH performance, the importance of a correct selection of the OSH interventions becomes crucial for these companies. First, it is clearly the case that small firms have more limited resources than do larger organizations do, including limited financial resources for investment in new equipment and training, plus also limited management time and skills for identifying and addressing hazards and risks (Chittenden et al., 2002; Lancaster et al., 2003; Walters, 2003).

Moreover, exemption from regulations, coupled with the rarity of health and safety inspections in small workplaces, may increase worker exposure to labour risks. Several authors have spotted that, since accidents are relatively infrequent due to the smaller size of the workforce, SBs employers have a distorted perception of the problems in their companies and wrongly believe that the status quo is acceptable (Antonsson, 1997; Borley, 1997; Dugré´ and Le´vesque 1993; Gardner et al., 1999; Gates, E., 1994; Mostue and Rosness, 1994; Pham et al., 1993). As a result, OHS appears in a low position on their list of priorities in these cases.

A number of studies also confirm that small firms typically have a low awareness of regulatory requirements (e.g. Fairman and Yapp, 2005; Hillary, 2000; Vickers et al., 2005). It has been further shown that the widespread lack of knowledge among small firms is frequently compounded by the difficulties they experience in understanding how the legal requirements relate to their business and a tendency to conceive compliance differently to the view of enforcers. Besides, employees in small firms are also much less likely to be members of trade unions and to have access to representative arrangements through which joint consultation over health and safety matters can occur (Nichols et al, 1995; Nichols et al, 2004). Unions play a significant role in the development of workplace OHS systems: they support their members, engage in health and safety education and training, represent labour in multipartite deliberations, advocate for system change and so on. Typically, the level of unionization in SBs is low, with a corresponding likelihood of irregular norms and standards, and greater imbalance of power between labour and management (Eakin, J. M., Champoux, D. et MacEachen. E.).

Existing research findings also indicate that the small firm 'sector' is highly heterogeneous and that enterprises respond to regulatory consequently and this varies considerably according to their particular characteristics (e.g. the awareness and motivation of owner-managers, and the capabilities and 'culture' of enterprises) and their operational contexts (e.g. the nature of product market and supply chain influences) (Edwards et al., 2002; Hutter and Jones, 2006; Vickers et al. 2005). Thus, while previous research supports the

understanding that many small firms have a reactive stance towards regulation, often expressing that they find it burdensome, it also demonstrates how attitudes and motivations can range considerably from overt rejection of the legitimacy of regulation and its avoidance to more positive and even proactive stances towards compliance.

Furthermore, a study by researchers at Warwick Business School and Universitat Autonoma, Barcelona (Capalleras et al., 2005) suggest regulation as a 'second division' influence upon the performance of new and small firms and that of greater significance are the characteristics of new and small firm owners, notably their skills and determination. I estimate that there is a crucial research issue in order to better understand how employer's attitude can impact on companies" OSH-performance.

On this study, the model proposed by Miles and Snow (1978) was adopted to describe competitive strategies in small companies. Miles and Snow suggested that a firm in general develop relatively stable patterns of strategic behaviour in order to accomplish with observed environmental conditions. This organizational adaptation model establishes a theoretical framework and contains an organizational typology which portrays different patterns of adaptive behaviour used by organizations. This model is the best known and most widely used strategic typology because of its adaptability, and its application to the study of a wide variety of strategic issues has been success.

Miles and Snow (1978) concluded that four types of viable strategies can be identified. They are: prospectors, defenders, analyzers and reactors. These seem to cover all the major possible organizational responses to new circumstances: innovate (prospector), follow promising new developments (anxious analyzer), consolidate (domain defender) or wait for the unfolding developments (reluctant reactor).

a)   Prospectors search for new market opportunities. Such organizations are characterized by a strong concern for product and market innovation, a visionary mode based on looking ahead to break new grounds, a high risk orientation, a quick response to new circumstances, the invasion of the markets of other organizations, devotion of more attention to market changes than to improve internal efficiency and an entrepreneurial organizational culture with a calculative commitment (Thompson, 2003; Gomez-Mejia and Balkin, 1992). For a Prospector, maintaining a reputation as an innovator may be as important as high profitability.

b)   Defenders keep their primary attention to improve the efficiency of their existing operations. These organizations prefer to maintain a secure position in a relatively stable product or service area. They emphasize to protect the market. Such behaviors include competitive pricing or high-quality products, rather than emphasizing on new product development. It is highly cost-efficient and relies on the continued viability of its narrow

domain. Defenders respond to their chosen environments in a complete opposite way to the Prospector.

c)   Between these two extremes, a third type of organization is called the Analyser. Analyser's attempt to minimize risk and these are organizations that are seldom first in with new products or services but monitor competitors and adjust their strategies as promising new ideas are seen. Such organizations attempt to maintain a stable, limited line of products or services while, at the same time, moving out quickly to follow a carefully selected set of the more promising new developments in the industry. Thus, the word that describes this approach better is balance. This strategy is difficult to pursue because it is a mixture of the first two strategies.

d)   Reactors are characterized by an inability to respond effectively to pressures for change. According to Miles and Snow (1978), a reactor will seldom make adjustments of any sort until it is forced to do so by environmental pressure. Management may not have clearly articulated the organization's strategy, or they do not fully shape the organization's structure and processes to fit the chosen strategy.

   According to Zahra and Pearce (1990), results from a high number of studies have strongly supported Miles & Snow's propositions that four types of different strategies exist in different environments. Moreover, the hypothesis that reactors outperform by the other three types seem to have been strongly supported. There are studies that approach the study of strategy formation in SBs. Chaganti (1987) designed a comparative study of strategies adopted by small firms in different industry growth environments. This study allowed concludes that the environment has a contingent role on strategy formulation. Rugman and Verbeke (1987) argued small firms can only adopt a focus strategy and so, the choice between overall cost leadership, overall differentiation is not an issue in a small enterprise. They exemplify the application of Miles and Snow's framework to the Canadian electrical distribution industry. In summary, the review of empirical evidence related to Miles and Snow's taxonomy of generic strategies provides a strong support for the proposition that four different generic strategies exist in a variety of environmental settings. Furthermore, dynamic environments will have a higher proposition of prospectors, while defender type firms will be predominant in more stable industries. Conflicting evidence has been reported in relation to performance differences among the four strategic types. It seems that variables of both an internal and external nature may influence this relationship, such as, firm size or environmental turbulence Gimenez (1999).

   Thus, there is wide literature examining the strategic planning on the financial performance of small firms. But no prior studies were found that address the effects of the different organizational strategies on the Health and Safety area. Daniele Champoux*, Jean-Pierre

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Brun already researched Occupational health and safety management in small size enterprises and found a significant associations between OHS management and firm characteristics. They identified four clusters summarizing the main characteristics of the firms in terms of activities, management style and OHS management. This result confirms there are some significant differences in OHS management among companies, and suggests that interventions with small firms, including provision of support to OHS management, be aimed at specific sub-groups of small firms, based on their practices, their owner-managers' perceptions and their management styles, as well as on certain organizational characteristics.

Legislation in Spain

National and European legislation regulates strongly OSH in Spanish firms. In the early 1990s the European Union (EU) began issuing OSH laws for the first time, such as European Framework Directives 89/391/EEC. As a member of the EU, Spain adopted EU's OSH laws in 1995. Spain's Law for the Prevention of Labor Risks established the basis for employers throughout Spain to implement all of the EU's OSH directives. The Occupational Risk Prevention (Law 31/1995) is the mainstay of OSH politics in Spain. The Law settles in the constitutional command content in the article 40.2 of the Constitution and in the European juridical wealth on protection of the health of the workers. Next to it, the contracted commitments with the International Labour Organization enrich the content of the legal text.

This Law establishes the basic body of guarantees and responsibilities in order to obtain an appropriate level of protection of the health of the workers in front of the derived risks of the work conditions. In addition to this, there are three former Spanish OSH laws which enforced that first law of 1995, (Law 54/2003), (Real Decree 39/1997) and (Real Decree 171/2004).

Thus, the design of the procurements and activities that allow establishing the OSH system in a Spanish enterprise are based on European Framework Directives and the demands of these Spanish laws.

Law 54/2003 reviewed the Occupational Risk Prevention (Law 31/1995), and emphasizes the need of integrate OSH in the general business activity in order to get an effective prevention of occupational risk. In its first article demands that the integration of the prevention must involve to all company's levels and to any business activity, beyond it should be considered in every decisions taken by a company. So the prevention must be integrated in the company management system, starting in the business politics.

Consequently there are some basic preventive actions which are mandatory and we can group them in seven types:

    A. Evaluation of occupational risk and preventive planning.
    B. Informing and training workers.
    C. Control of the occupational conditions and worker's activity.
    D. Monitoring worker's health status.
    E. Monitoring any changes in work conditions or in the workers.
    F. Controlling any emergency and investigations any accidents
    G. Review of the OSH system. Auditions of the preventive planning.

The Spanish legislation defines different modalities of preventive organizations according to company's characteristics. In order to the company's staff size it is necessary to settle a corresponding preventive option. (Art. III RD 39/1997). The small companies, between 10

and 50 employees, can choose between two modalities: contract external OSH services or internal OSH through a worker who must be a specialist in OSH full time. Furthermore, the preventive activities are classified into four expertise areas in the Spanish regulation:

1- Workplace safety.
2- Industrial hygiene.
3- Ergonomics and psychosocial risk prevention.
4- Occupational medicine.

Well, all of them must be granted and require expertise services in order to carry out the different preventive activities fully. Then, most of these companies decide to outsource OSH activities. Then, they sign a contract with a SPA[2] (external preventive agency) in which it is must be specified the preventive expertise areas that need to be provided externally. These external services are recognized by Labour Authority as agencies that provide the human and technical support to the protect worker's health and safety in theirs workplaces; but they have to fulfill several requirements, registered in RD 39/1997.

The second choice means to assume internally OSH. This modality requires that the employer nominate one or more employee as OSH technician, and they are in charge of the preventive activities in the enterprise and they must be trained and qualified accordingly. However, if some preventive activities because of its complexion could not be carried out by these employees, they will be provided by external preventive agencies.

Anyway, when an enterprise don't count on an own preventive service, it is convenient to have a nominated employee to coordinate the matters related to OSH.

On the other hand, the Spanish law establishes that the Spanish companies may have some worker's representatives in function of the size of the company's staff. These people are called delegates of Prevention and corresponds one delegate to companies which count with a staff from 6 to 50 people. These delegates have got specific OSH tasks, so they must be trained in OSH. They are selected among and by union representatives. Regarding the number of worker's representatives, small companies with less than 30 employees get one personal delegate, but companies with over 30 but fewer than 50 employees will have 3 delegates. The role of a delegate of prevention is defined in the article 35 of the Law 31/1995, and as it is a union representative we will find that it is the same people in small companies with over 30 employees because these ones only have one union representative. In brief, these people represent the right of any employee to develop their jobs in a healthy and safety way.

In addition, the employer must provide the necessary information and specific training in order to avoid any labour risk in their workplaces (art 18&33 law 31/1995). Therefore, the

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[2] SPA: Servicio de Prevención Ajeno

employee must grant employee's consultation and participation in any point regarding OSH when this affects to their workplaces (art 18 law 31/1995)

To sum up, there is an expend legislation in Spain in regards to OSH and small businesses are regulated in this matter closely. Furthermore, current OSH policies are led towards mainstreaming OSH into the company fully and this demands a wide range of actions and plans to the companies. Then, companies are demanded to make some efforts in order to fulfill the nowadays OSH regulation.

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Purpose of the Study and Hypotheses

This exploratory study seeks investigating the possible connections between the different types of strategic planning and the occupational health and safety performance registered in the Spanish small companies. Consequently, I planned to observe the effects of each organizational strategy 'ideal' model on the preventive performance observed in the small firms attending to its preventive activities and other potential explanatory factors.

In this way, I selected the small companies following the criteria used by the study ENGE[3] in which I based the empirical analysis of this investigation. This mentioned study separate small firms from micro firms (companies that employ less than 10 people). Therefore, I restricted this investigation to the small firms which count on 10 or more employees but under 50 people in their staff. ENGE study is result of a survey which contains a question in relation to the strategies used by the firms and other matters linked to the OSH management. To begin with, I separated the companies in four clusters in order to their answers to the mentioned question. As a consequence, I identified these clusters with each kind of organizational strategic planning proposed by Miles and Snow. Hence this typology I purposed to test the possible connections with variables referred to OSH in small companies.

Firstly, I attend to check the importance given to the OSH from an organizational strategic point of view. I consider interesting this test in order to estimate the weight of OSH in the strategic planning of each OSP model. There is a widespread concern that small companies don't mainstream OSH into the business core activities. When there is not a mainstreaming OSH into strategic planning, it is likely that it is not a core activity of the company. However, it seems logical to think that different strategy type means different scenarios, so we could find a different strategic value of OSH in function of the type of company defined previously. The prospector model is characterized because of its flexibility and because of monitoring wide range of environmental conditions and events, and these items could make most likely to take OSH into account as business core strategy. In contrast, defenders are focus on their product or services and it is harder for them identify OSH as a core activity.

H1 Different type of organizational strategy makes different scores on OSH (Strategy – OSH value)

In the same line as former hypothesis, the different enterprise types could have different motives to implement OSH activities in their workplaces. I worked on this in basis to an entry that ask for scoring from most important to less among eight possibilities or motives. There are some options related to legal requirements, others linked to HR relations and others

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[3] ENGE: Encuesta Nacional sobre Gestión de las Empresas.

associated to industrial relations. Well, the legal reasons should be most important for reactor, but defender could select industrial relations too. Lately, prospectors could be more likely to choose HR relation motives.

   H2 Different type of organizational strategy has different motivation to work in OSH.

   There is a question that request to identify preventive activities developed in their workplaces. I have chosen this in order to measure the OSH activity rate. There are ten activities defined, therefore I considered that the more activities developed the higher OSH activity in the enterprise. Being consistent with the first hypothesis, prospector should score higher than others due to their higher interest in OSH. In contrast, reactors should get the lowest activity ratio because their lack of planning.

   H3 Different type of organizational strategy shows different intensity of preventive activities.

   Likewise, it is plausible to estimate that the different types of organizations act in different way in terms of developing OSH in their organizations. Firstly, I would like to spot what type of company make highest assessment level. So I took an entry related to risk assessments; there are described seven types of assessments which can classify according to their corresponding expertise area. Later, I collected these assessments into the belonging expertise area. The reason to treat this is because the defining characteristics of each type of organization make likely to find that some companies work harder is some aspects than others. Furthermore, exposure to different types of hazards related to size, industry and sector was analyzed in a Danish study, (Hasle et al., 2005) which showed a correlation between business size and the following factors in the work environment in private sector businesses: postures, physical loads, exposure to chemicals and the physical environment. A study (Sorensen et al., 2007) confirmed that "the ergonomic, physical and chemical work environment is more hazardous in small enterprises than in large ones", but the authors added that the psychosocial work environment is actually better. In addition, the work environment seems to deteriorate for male employees when the size of the business is smaller (Hasle et al., 2005). Then, as the size is a plain factor, the type of strategic planning could have some effects as well.

   H4 Relationship between types of organizational strategy and different OSH expertise areas. They might have different focus in their preventive activity.

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Data and methodology

1. *SAMPLE*

The analysis makes reference to the dataset stemming from the National Survey of the Health and Safety Management in Spanish businesses provided by National Institute of Safety and Hygiene at Work (INSHT[4]) in 2009. This Institute depends on Department of Labour, in the scientific-technician institution of the General Administration of Spain (Law 31/1995 Occupational Risk Prevention), and as such one of its missions is the analysis and study of the OSH conditions in the Spanish workplaces, besides the promotion and support to the improvement of these conditions.

The surveyed population of this study includes all establishments registered in the official census on the social security administration with more than one worker in any economic activity. This survey is addressed to the company's owner or top manager. The population involves a total of 1.120.276 units, hence 1.081.79 are small size businesses with a staff over 50 people, and there are stratified in base to its economic activity and size. This study defines as micro firms the companies with less than 10 workers; while the small firms count with 10 employees or more but less than 50. To sum up a total of 189.287 small firms attending to the mentioned census updated in November 2008.

From this stratification, the sample size is 5.147 cases. For each stare is selected a minimum of 400 units. As a result, there are 1.581 cases representing the small firms, and they are framed as the following:

Economic activity	Number of employees (from 10 to 49)
Agriculture & cattle raising	100
Extractive & manufacturing industry	157
Chemicals	104
Metals	141
Other industries	145
Construction	146
Retail	163
Transports	122
Finances	129
Social & public services	249
Other services	115
TOTAL	1.581

[*] Source: technical report elaborated by the Institute Sondaxe

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[4] INSHT: Instituto Nacional de Seguridad e Higiene en el Trabajo.

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2. *QUESTIONNAIRE*

The form applied contains a total of 57 questions structured in the following nine information sections:

A. General information of the business

B. General information and structured of the business workplace.

C. Business management.

D. Participation.

E. Resources for OSH.

F. OSH activities.

G. Invest in machinery and work equipment.

H. Accidents

I. General valuation.

The study of the planning strategy factor is based on the question 12 related to the business management section. This question asks for scoring from 1 as most important and successive among ten items related to the business strategy. These options are:

A. Increase of production

B. Improve of quality

C. Develop of new products or services

D. Reduction of staff cost

E. Reduction of production or logistic cost

F. Improve of OSH

G. Improve the business image.

H. Investigation, develop and innovation

I. Eco friendly.

J. Other

On the order hand, I worked on the question 38 of this survey that requests to identify preventive tasks which have been developed in their workplaces. There are coming options:

A. Elaboration of the occupational risk prevention plan.

B. Planning of preventive activity.

C. Establish priorities and controls of efficiency over preventive activities.

D. Define the emergency measures.

E. Practices related to the emergency plan.

F. Elaboration of a self-protection plan.

G. Training in OSH.

H. Inform about the risks and adopted tools.

I. Investigate the occupational accidents.

J. Participation of intermediate responsive in OSH.

K. Other.

Another question I worked on identifies possible risk assessments developed in the workplaces during the last two years. There are the coming possible responses to this question 39:

A. Safety of machinery, equipment, materials and work installations.

B. Chemical products.

C. Postures, physical efforts and repetitive movements.

D. Biologic hazards.

E. Physical hazards (noise, vibrations, temperature).

F. Designing of workplaces.

G. Psychosocial and organizational aspects.

H. Other.

To finish with, the question 56 is related to the motives of the employers in implementing OSH actions in their companies. The possible answers are:

A. Carry out legislation.

B. Avoid legal penalizations.

C. Respond to worker's demands.

D. Care of company image.

E. Improve work conditions.

F. Economic reasons.

G. Get a good working environment.

H. Increase competitiveness of the company.

I. Other

3. *MEASUREMENT OF CONSTRUCTS (data mining)*

- *INDEPENDENT VARIABLE*

I selected type of strategic organization as *independent variable* searching to analyse this in connection to a set of explanatory variables. This variable captures four different types of organizational strategic planning which have been defined following the theoretical framework designed by Snow and Miles in 1978. I constructed four dummy binary variables corresponding to the presence or absence of choice (1=yes, 0=no) for each type of organization attending to their three first business strategies market. Then, these four types of enterprises were built taking from question 12 into consideration the options C, G and H as prospector strategies, because these are focus on innovation and long-term commitments; and taking B, D and E as defender strategies because a defender looks for competitive

pricing and/or high-quality products in order to maintain a its small niche within the industry. No answer belongs to reactors, as they are not able to identify a clear planning in their business. The fourth type is a mixture, for this reason analyser answer contains prospector and defender answers at the same time. The rest of the possible answers have been treated as neutral.

   After, I substrate the first three selected strategies in order to configure the different clusters, after checking other possible alternatives this options seems the most stable and reliable. When I selected less answers it was hard to classify some cases because there are some neutral answers, and selecting more answer I were afraid of decrease the reliability of the answers.

   As a result, I configured a table with the different possibilities registered and I assigned a type of organization to each case. I understood that when we found any answer linked to a defender perspective among the three first strategies identified but none related to prospector's I classify them as defenders. Likewise, no matter the order, and there could be neutral answer, but not prospector answers. So I follow this logic in order to produce a typology based on Miles & Snow proposal with the dealt cases.

   I took into account as second independent variable the sector to which the company belongs to as the second independent variable. It is wide recognized that the economic activity and its corresponding sector generates different scenarios in order to implements OSH policies, so it is necessary to measure its effects as indicator of the working environment on this sample. As I did with former variable, I went through a data mining process in order to build four dummy variables which indicates the belonging or not to each sector. In table 1, figures indicate the number for each strategic types present in the sample according to their respective sector.

Table 1   **Miles & Snow Tip, * Sector Cross tabulation**

	Sector de la empresa				Total
	Agrario	Industria	Construcción	Servicios	
ANALISER	42	256	68	420	786
DEFENDER	47	249	60	246	602
PROSPECTOR	6	35	11	70	122
REACTOR	3	12	6	50	71
TOTAL	98	552	145	786	1581

   I took as reference category reactor from types of strategic organizations, so this category was not selected when I run the regression tests. In the same way, I chose as reference category Industry from the dummy variables referred to economic sector of the company. In short, *reactor* and *industry* remain out of the scope in the regression tests.

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- *DEPENDENT VARIABLES*

OSH strategic value

To test H1. I created an indicator of the value given to OSH in terms of strategic planning. It is defined by the answers to the question 12 which pointed out OSH as one of the three first business strategies. As a result, I identified the firms that take OSH as one of their principal strategies from the firms that give less priority to OSH as strategy. I chose the first three strategies attending to the same plan I designed for the organizational types. The OSH value variable is built checking positive responses and creating a dichotomous dummy variable (0=no priority, 1=yes). This variable presumes that if OSH has been chosen as one of the first priorities of the strategic planning in a company, it means that a company values highly OSH as its business strategy. We can see descriptive stat that shows the sample distribution according to types of organization.

Table 2   **Miles & Snow Typology * PRL scores in first 3 position Cross tabulation**

	PRL scores in first 3 position		Total
	No as priority	Priority	
ANALISER	680	106	786
	86,5%	13,5%	
DEFENDER	428	174	602
	71,1%	28,9%	
PROSPECTOR	60	62	122
	49,2%	50,8%	
REACTOR	71	0	71
	100,0%	0,0%	
TOTAL	1239	342	1581
	78,4%	21,6%	

Motivation

To test H2. This variable is built using the first choice recognized as motive to implement OSH actions. From the eight options provided in the questionnaire I grouped them into three types of reasons: (1) Legal (2) HR relations (3) Industrial relations. So I got a categorical dependent variable with three possible values (multinomial). In the coming cross tabulation it is shown the interrelation between type of organization and motives to make prevention of occupational risk.

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Table 3   **Miles & Snow Typology * Motives Cross tabulation**

	Motives				Total
	Legal	HR relation	Industrial relation	NS/NC	
ANALISER	336	411	32	7	786
	42,7%	52,3%	4,1%	0,9%	
DEFENDER	267	313	17	5	602
	44,4%	52,0%	2,8%	0,8%	
PROSPECTOR	42	71	7	2	122
	34,4%	58,2%	5,7%	1,6%	
REACTOR	33	33	1	4	71
	46,5%	46,5%	1,4%	5,6%	
TOTAL	678	828	57	18	1581
	42,9%	52,4%	3,6%	1,1%	

Preventive activity level

To test H3. I created a variable as an arithmetic sum of the positive responses to activities developed in the workplaces (0=no, 1=yes). It is presumed the more positive answer the high preventive level. In order to make this variable more manageable and easier to study I separated the sample into two parts, one with the highest scores and calling this "high preventive activity" and a second one called "low preventive active" with scores lower than average. Moreover, this process allowed me to set a dummy variable in order to identify companies with highest activity. So it is coded 1 if the preventive activity is over the average and 0 if it is under the average. The mean of the preventive activity is 6.17, so I selected entries with over 6 preventive activities implemented coding them as 1=high activity.

Table 4   **Miles & Snow Typology * Preventive activity Cross tabulation**

	Preventive activity		Total
	Low activity	High activity	
ANALISER	380	406	786
	48,3%	51,7%	
DEFENDER	261	341	602
	43,4%	56,6%	
PROSPECTOR	56	66	122
	45,9%	54,1%	
REACTOR	45	26	71
	63,4%	36,6%	
TOTAL	742	839	1581
	46,9%	53,1%	

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OSH expertise area

To test H4. This variable is constructed attending to the risk assessments deployed during the last two years. From the original seven options I classify them into three types of assessments according to the OSH expertise affected. So it is based on the affirmative answers to the each type of assessment, this way I get the risk assessment level of the each type of company; and beyond I associate the assessment realized with its corresponding expertise area. Consequently, I try to find any relevant connection between the type of organization and their affinitive towards a certain expertise area when they assess the occupational risk in their workplace. The data mining process for this test made me build three dummy variable for each type of expertise, and each of these variable shows (1=yes) when the company assess this type and (0=no) when no assessments took place in that company in that OSH specialty. In below table 4, it shows assessment activity.

Table 5	Miles & Snow Typology * Risk assessment Cross tabulation				
	Risk assessment				Total
	None assessments	One expertise areas	Two expertise areas	Three expertise areas	
ANALISER	44	25	106	544	719
	6,1%	3,5%	14,7%	75,7%	
DEFENDER	44	28	67	403	542
	8,1%	5,2%	12,4%	74,4%	
PROSPECTOR	10	5	16	80	111
	9,0%	4,5%	14,4%	72,1%	
REACTOR	7	4	10	44	65
	10,8%	6,2%	15,4%	67,7%	
TOTAL	105	62	199	1071	1437
	7,3%	4,3%	13,8%	74,5%	

- *PREDICTOR VARIABLES*

In logistic regression, these variables are used to build a mathematical equation that predicts the probability that the dependent variable takes on a value of 1. So, this empirical analysis takes into account a set of control variables as well. I have them looking for other factors that may influence independent variables together, when we explain the behaviour of the dependent variable. It required a date mining process in order to get a binary dummy variable for each of the factors I consider.

Thus, a factor that I found interesting to consider is the risk perception. For this I have relied on one question that asks for replying whether it is any occupational risk in their

company or there is no risk at all. I think it is interesting to check possible significant changes caused by this item.

Moreover, the preventive modality selected by the firm could explain some fluctuations in the performance. I have distinguished the companies with outsourcing of OSH. In addition, the existence of a standardized OSH system such as OSHAS 18001 could influence as well. For these reasons I took these two control variables.

On another hand, I included as control variable the presence of a delegate of prevention. This figure represents worker's rights and demands in terms of OSH, and this pressure makes different OSH performances according several studies. So I built a dummy variable that indicates the enterprises which count on this type of union influence.

Lastly, I took as control variable the occupational incidence. This factor is defined by the existence of occupational accidents or/and professional disease during the last two years. Then, I built a dummy variable with (1=yes, 0=no), so 1 means that there has been some occupational incidence in that company in last two years, and 0 indicates no incidence registered.

4. DATA ANALYSIS – Logistic Regression Models.

I analyzed the data with software IBM SPSS Statistics 21data and I run several regression tests in order to evaluate the hypotheses. Logistic regression analysis is a popular and widely used analysis that is similar to linear regression analysis except that the outcome is dichotomous. Generally, logistic regression is well suited for describing and testing hypotheses about relationships between a categorical dependent variable and some categorical or continuous explanatory variables. Logistic regression applies the logit transformation to the dependent variable and it predicts the logit of Y from X. The logit is the natural logarithm of odds of Y, and odds are ratios of probabilities (π) of Y happening to probabilities ($1 - \pi$) of Y not happening. Alas, the goal of logistic regression is predicting the likelihood that Y is equal to 1 (rather than 0) given certain values of X.

Logistic regression can accommodate categorical outcomes that are either polytomous or dichotomous outcomes; consequently, logistic regression can be binomial or multinomial. Binomial or binary logistic regression refers to the instance in which the observed outcome can have only two possible types. Multinomial logistic regression refers to cases where the outcome can have over two possible answers. As I studied both types of dependent variables I applied both logit regression models. I used multinomial logistic regression model for the hypothesis regarding the employer's motives of implementing OSH in their workplaces due this dependent variable is coded with over two categories. In the other cases, I run binary logistic regression tests.

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Categorical items can be converted into numerical representations in which the categorical levels are ordered but distances between them are not proportional. The outcome in logistic regression analysis is often coded as 0 or 1, where 1 indicates that the outcome of interest is present, and 0 indicates that the outcome of interest is absent. If we define p as the probability that the outcome is 1, the multiple logistic regression model can be written as follows:

$$\hat{p} = \frac{\exp(b_0 + b_1 X_1 + b_2 X_2 + ... + b_p X_p)}{1 + \exp(b_0 + b_1 X_1 + b_2 X_2 + ... + b_p X_p)}$$

> $\hat{p}$ is the expected probability that the outcome is present; X1 through Xp are distinct independent variables; and b0 through bp are the regression coefficients. The special function f ( ) we use is called the logistic function (or logistic transform):

$$f(p) = \log\left(\frac{p}{1-p}\right)$$

I have used p as the argument to the logistic function because this function takes on values between 0 and 1 (like a probability). The next step, when the dependent variable Y is a binary variable (taking values of 0 or 1 only), E(Y)=p, where p is the probability that Y takes the value 1. In brief, the multivariate logistic regression equation that fits to these data is:

$$\log\left(\frac{p_i}{1-p_i}\right) = \alpha + \beta_1 X_{i1} + \beta_2 X_{i2} + \cdots + \beta_p X_{ip}$$

> Pi is the probability that pi is 1. Since pi is called the "odds"

I used the stepwise methods called Forward LR in binary regressions when it was needed. Forward: LR suits when there are a large number of explanatory variables. As in linear regression, the "forward" methods will start with no predictor variables in the model and then enter variables one at a time, at each step adding the predictor with the largest score statistic whose significance value is less than 0.05. At each step, SPSS will check for significance of variables already in the model to see if any should be removed. Removal is based on the likelihood ratio test.

Unlike discriminate function analysis, logistic regression does not assume that predictor variables are distributed as a multivariate normal distribution with equal covariance matrix. Instead, it assumes that the binomial distribution describes the distribution of the errors that equal the actual Y minus the predicted Y.

To sum up, logistic regression models allow two main purposes:

- Quantify the importance of the relationship between each of the independent variables and the dependent variable, which also implies the existence of interaction clarify among these factors on the dependent variable.

- Classify entries within the categories of the dependent variable as the probability you have to belong to one of them given the presence of certain control variables.

Results

   *H1: Different type of organizational strategy makes different scores on OSH (Strategy – OSH value). This first hypothesis was supported for the results of the statistic checking. As can be seen in table 6.1, after running a binary logistic regression test the explanatory variables that reflect different type of organizational strategy are significant respect to the strategic value of OSH. In addition, one sector and the implementation of the OSH system "OSHAS 18001" have significant effects on OSH strategic value as well. The figures in the table 6.2 show that there is a positive impact when those strategic organizations are involved in terms of increasing the strategic value of the OSH. On the other hand, the factors listed in the table 6.3 were not taken into account in this case.

Table 6.1   **Step Summary**

| Step | Improvement | | | Model | | | Correct | Variable |
	Chi-square	df	Sig.	Chi-square	df	Sig.	Class %	
1	55,275	1	,000	55,275	1	**,000**	78,5%	IN: Prospector
2	61,514	1	,000	116,789	2	**,000**	78,5%	IN: Defender
3	19,631	1	,000	136,420	3	**,000**	78,5%	IN: Analyser
4	6,077	1	,014	142,498	4	**,000**	78,5%	IN: OSHAS_18001
5	6,651	1	,010	149,148	5	**,000**	78,4%	IN: Agrario

a. No more variables can be deleted from or added to the current model.

b. End block: 1

Table 6.2   **Parameter Estimates**

	Estimate	Std. Error	Wald	df	Sig.
[Total_PRL = 0]	-31,610	,402	6178,435	1	,000
[Analyser=0]	-15,839	,210	5678,581	1	,000
[Analyser=1]	0[a]	.	.	0	.
[Defender=0]	-16,828	,204	6821,249	1	,000
[Defender=1]	0[a]	.	.	0	.
[Prospector=0]	-17,709	,000	.	1	.
[Prospector=1]	0[a]	.	.	0	.
[Agrario=0]	,751	,313	5,757	1	,016
[Agrario=1]	0[a]	.	.	0	.
[OSHAS_18001=0]	,423	,173	5,976	1	,015
[OSHAS_18001=1]	0[a]	.	.	0	.

Link function: Logit.

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

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Table 6.3   **Variables not in the Equation**

	Score	df	Sig.
Construction(1)	,620	1	,431
Services(1)	,386	1	,535
RISK_SENSE	2,023	1	,155
SPA	,738	1	,390
DELEGATE	,008	1	,928
Incidence	1,927	1	,165

*H2: Different types of organizational strategy have different motivation to work in OSH. This second hypothesis has dealt using a multinomial logistic regression model. We find in the first column of the table 7 the different motives identified.

Regarding legal motives, we found a significant influence of two types of organizational strategy (analyser and defender), so the second hypothesis is confirmed partially. Moreover, the agricultural sector and the presence of an external preventive service and OSHAS system implemented are significant as well. In brief, there is a positive influence, so means these companies are more likely to expose legal reasons in occupational risk preventing.

Furthermore, these two types of organizations have a significant influence in terms of motives associated to HR relations. So this enforces the first analysis, but in this case the presence of the OSHAS system is not so important; but the agriculture sector and an external preventive service are still in the loop.

The last motive observed is less influenced by the measured variable. There is only one significant factor, and this is the type of organizational strategy recognized as analyser. In contrast to former cases, the defender type is not relevant as explanatory category, but analyser category shows more affirmative answers to this motive.

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Table 7   **Parameter Estimates**

Motives[a]		B	Std. Error	Wald	df	Sig.	Exp(B)
	[Analyser=0]	-1,708	,679	6,331	1	**,012**	,181
	[Analyser=1]	0[b]	.	.	0	**.**	.
	[Defender=0]	-1,800	,729	6,089	1	**,014**	,165
	[Defender=1]	0[b]	.	.	0	.	.
	[Prospector=0]	-,820	,908	,816	1	,366	,440
	[Prospector=1]	0[b]	.	.	0	.	.
	[Agrario=0]	-14,879	,568	685,962	1	**,000**	3,453E-007
	[Agrario=1]	0[b]	.	.	0	.	.
	[Construction=0]	,671	,903	,552	1	,458	1,956
	[Construction=1]	0[b]	.	.	0	.	.
LEGAL	[Services=0]	,332	,606	,300	1	,584	1,394
	[Services=1]	0[b]	.	.	0	.	.
	[RISK_SENSE=0]	,347	,526	,436	1	,509	1,415
	[RISK_SENSE=1]	0[b]	.	.	0	.	.
	[OSHAS_18001=0]	,877	,532	2,717	1	**,099**	2,403
	[OSHAS_18001=1]	0[b]	.	.	0	.	.
	[SPA=0]	-1,299	,499	6,769	1	**,009**	,273
	[SPA=1]	0[b]	.	.	0	.	.
	[DELEGATE=0]	,391	,495	,624	1	,430	1,479
	[DELEGATE=1]	0[b]	.	.	0	.	.
	[Incidence=0]	,222	,538	,170	1	,680	1,248
	[Incidence=1]	0[b]	.	.	0	.	.
	********************						
	[Analyser=0]	-1,875	,679	7,620	1	**,006**	,153
	[Analyser=1]	0[b]	.	.	0	.	.
	[Defender=0]	-1,879	,730	6,625	1	**,010**	,153
	[Defender=1]	0[b]	.	.	0	.	.
	[Prospector=0]	-1,297	,904	2,058	1	,151	,273
HR RELATIONS	[Prospector=1]	0[b]	.	.	0	.	.
	[Agrario=0]	-14,866	,561	701,764	1	**,000**	3,497E-007
	[Agrario=1]	0[b]	.	.	0	.	.
	[Construction=0]	,823	,901	,834	1	,361	2,277
	[Construction=1]	0[b]	.	.	0	.	.
	[Services=0]	,533	,605	,775	1	,379	1,704
	[Services=1]	0[b]	.	.	0	.	.

	[RISK_SENSE=0]	,672	,526	1,634	1	,201	1,959
	[RISK_SENSE=1]	0^b	.	.	0	.	.
	[OSHAS_18001=0]	,958	,532	3,249	1	,071	2,607
	[OSHAS_18001=1]	0^b	.	.	0	.	.
	[SPA=0]	-1,384	,499	7,706	1	**,006**	,251
	[SPA=1]	0^b	.	.	0	.	.
	[DELEGATE=0]	,226	,495	,208	1	,648	1,253
	[DELEGATE=1]	0^b	.	.	0	.	.
	[Incidence=0]	,208	,537	,150	1	,698	1,231
	[Incidence=1]	0^b	.	.	0	.	.
	*****************						
	[Analyser=0]	-2,702	1,210	4,989	1	**,026**	,067
	[Analyser=1]	0^b	.	.	0	.	.
	[Defender=0]	-2,309	1,251	3,405	1	,065	,099
	[Defender=1]	0^b	.	.	0	.	.
	[Prospector=0]	-2,418	1,384	3,054	1	,081	,089
	[Prospector=1]	0^b	.	.	0	.	.
	[Agrario=0]	-14,675	,000	.	1	.	4,233E-007
	[Agrario=1]	0^b	.	.	0	.	.
	[Construction=0]	,739	1,002	,544	1	,461	2,094
INDUSTRIAL	[Construction=1]	0^b	.	.	0	.	.
RELATION	[Services=0]	1,135	,670	2,870	1	,090	3,110
	[Services=1]	0^b	.	.	0	.	.
	[RISK_SENSE=0]	,077	,597	,017	1	,897	1,080
	[RISK_SENSE=1]	0^b	.	.	0	.	.
	[OSHAS_18001=0]	,774	,619	1,567	1	,211	2,169
	[OSHAS_18001=1]	0^b	.	.	0	.	.
	[SPA=0]	-,920	,585	2,472	1	,116	,398
	[SPA=1]	0^b	.	.	0	.	.
	[DELEGATE=0]	-,113	,562	,041	1	,840	,893
	[DELEGATE=1]	0^b	.	.	0	.	.
	[Incidence=0]	-,103	,606	,029	1	,865	,902
	[Incidence=1]	0^b	.	.	0	.	.

a. The reference category is: NS/NC.

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

*H3: Different type of organizational strategy shows different intensity of preventive activities. As we can see below table 8.1, there are several factor which influence the intensity of the preventive activity significantly. Regards the type of organizational strategy, I found the two types (analyser and defender) over performance the other two, so there is a relationship as it is suggested in the hypothesis. Beyond, the control factor related to the presence of an external preventive service, OSHAS implemented and high risk perception are significant too in order to increase the OSH activities in the small companies.

In general, the literature findings indicate that the three main types; defender, prospector and analyser, perform well in most environments (Snow and Hrebiniak, 1980; Conant et al., 1990) whereas reactor tends to perform poorly relative to the others. The results of this study are not consistent with previous findings that suggest that two main categorizations are prevalent – prospectors and defenders. In this case, defender is ahead too but analyser overcomes lightly prospector´s preventive performance. Sector is key factor because prospector is significant when it is not taken into the formula, as can be seen in table 8.2.

Table 8.1   **Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Analyser(1)	-,559	,262	4,552	1	**,033**	,572
Defender(1)	-,710	,266	7,111	1	**,008**	,492
Prospector(1)	-,589	,312	3,550	1	,060	,555
Agrario(1)	,504	,225	4,994	1	**,025**	1,655
Construction(1)	,298	,196	2,311	1	,128	1,347
Services(1)	,439	,117	14,082	1	**,000**	1,551
RISK_SENSE	-,503	,127	15,780	1	**,000**	,605
OSHAS_18001	-,732	,133	30,322	1	**,000**	,481
SPA	,393	,140	7,889	1	**,005**	1,481
DELEGATE	,179	,107	2,815	1	,093	1,196
Incidence	-,174	,110	2,497	1	,114	,840

Table 8.2   **Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Analiser	,625	,261	5,744	1	**,017**	1,867
Defender	,809	,264	9,398	1	**,002**	2,246
Prospector	,638	,311	4,204	1	**,040**	1,892
RISK_SENSE	-,541	,125	18,679	1	**,000**	,582
OSHAS_18001	-,725	,132	30,161	1	**,000**	,484
SPA	,390	,139	7,855	1	**,005**	1,477
DELEGATE	,179	,106	2,854	1	,091	1,196
Incidence	-,181	,108	2,817	1	,093	,834

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*H4: Relationship between type of organizational strategy and different OSH expertise area. They might have different focus in their preventive activity. There are four expertise areas that I studied en the sample. I run a binary logistic regression test for each of them. In this case the hypothesis was not supported. As the coming tables indicate there is not a significant difference which allow me to support this hypothesis. There are two exceptions. Regarding safety and hygienic assessments, analyser tends to assess more in these disciplines. So these dependent variables are statistically insignificant.

Safety assessments

Table 9.1   **Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Prospector(1)	-,516	,351	2,161	1	,142	,597
Defender	,441	,288	2,350	1	,125	1,555
Analyser(1)	-,564	,283	3,970	1	**,046**	,569
Agrario(1)	-,482	,285	2,858	1	,091	,617
~~Construction(1)~~	~~6,092~~	~~1,009~~	~~36,439~~	~~1~~	**~~,000~~**	~~442,321~~
Services(1)	-,152	,134	1,290	1	,256	,859
RISK_SENSE(1)	-,010	,151	,005	1	,946	,990
OSHAS_18001(1)	,035	,157	,050	1	,824	1,036
SPA(1)	-,270	,161	2,802	1	,094	,764
DELEGATE(1)	,196	,129	2,290	1	,130	1,216
Incidence(1)	-,028	,132	,046	1	,830	,972

Organizational assessments

Table 9.2   **Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Analyser(1)	-,499	,278	3,211	1	,073	,607
Defender(1)	-,243	,282	,739	1	,390	,784
Prospector(1)	-,326	,339	,921	1	,337	,722
Agrario(1)	-,390	,269	2,100	1	,147	,677
~~Construction(1)~~	~~6,001~~	~~1,009~~	~~35,378~~	~~1~~	**~~,000~~**	~~403,860~~
Services(1)	-,047	,129	,133	1	,716	,954
RISK_SENSE	-,144	,142	1,029	1	,311	,866
OSHAS_18001	,103	,153	,448	1	,503	1,108
SPA	,142	,157	,813	1	,367	1,152
DELEGATE	-,065	,124	,274	1	,601	,937
Incidence	-,033	,127	,066	1	,798	,968

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Hygienic assessments

Table 9.3   **Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Analyser(1)	-,524	,263	3,975	1	**,046**	,592
Defender(1)	-,327	,267	1,499	1	,221	,721
Prospector(1)	-,417	,319	1,706	1	,192	,659
Agrario(1)	-,329	,237	1,921	1	,166	,720
~~Construction(1)~~	~~5,475~~	~~1,008~~	~~29,503~~	~~1~~	~~**,000**~~	~~238,617~~
Services(1)	-,071	,118	,362	1	,547	,932
RISK_SENSE	-,082	,131	,394	1	,530	,921
OSHAS_18001	-,071	,138	,270	1	,603	,931
SPA	,272	,144	3,541	1	,060	1,312
DELEGATE	-,027	,113	,056	1	,813	,973
Incidence	,137	,116	1,389	1	,239	1,146

Ergonomic assessments

Table 9.4   **Variables in the Equation**

	B	S.E.	Wald	df	Sig.	Exp(B)
Analyser(1)	-,349	,294	1,406	1	,236	,706
Defender(1)	-,187	,299	,390	1	,532	,830
Prospector(1)	-,068	,353	,037	1	,847	,934
Agrario(1)	,135	,254	,280	1	,597	1,144
~~Construction(1)~~	~~6,298~~	~~1,010~~	~~38,886~~	~~1~~	~~**,000**~~	~~543,656~~
Services(1)	-,022	,136	,026	1	,873	,978
RISK_SENSE	-,168	,147	1,311	1	,252	,845
OSHAS_18001	-,204	,154	1,756	1	,185	,816
SPA	,251	,161	2,433	1	,119	1,285
DELEGATE	-,233	,129	3,257	1	,071	,792
Incidence	-,175	,134	1,710	1	,191	,839

* I have refused to consider the agricultural sector as significant factor because it gives a standard error that exceeds 1 as you can see in the third column (SE)

Conclusions and implications

This investigation aimed to explore some factors that influencing OSH performance significantly in the small companies. Firstly, I spotted the business planning strategy as a potential explanatory factor of the variance in the OSH performance among small enterprises. In order to incorporate this factor to this study, my approach was to classify the companies in the sample following Miles and Snow's model. Hence I classified the small companies on the sample into the four types of strategic organization, and I modeled some variables regarding OSH.

For the first hypothesis of this study I examined the strategic value given to OSH for each type of strategic organization. Taking into account that management theory linkages to organizational strategy and structure we could assume that different types of organizations are funded in different management styles. This way, I would propose to extend the implications of this question beyond reaching the management style. A research by Daniele Champoux and Jean-Pierre Brun about the management style prevalent in small firms found significant the division of the small firms into four clusters, each with a characteristic, multi-dimensional profile. This result confirms there are some significant differences in OHS management among small businesses. They understood that the result of their investigation suggested that interventions with small firms, including provision of support to OHS management, should be aimed at specific sub-groups of small firms, based on their practices, their owner-managers' perceptions and their management styles, as well as on certain organizational characteristics.

The results of this empirical analysis supported the relationship between type of strategic organization and OSH strategic value. Prospector model is more likely to consider OSH among its activity core strategies, following by defender. On the other hand, other two types of strategic organizations rarely include OSH as business strategy. This point is important attending to the demand of mainstreaming OSH in the company. It is suggested that business owners should include OSH in their company's politics in order to achieve this target. Likewise, I concluded that prospector and defender could integrate OSH in their core business strategies more coherently than reactor and analyser could do following their strategic planning. The following step could be to investigate if top managers in prospector and defender organizations value higher OSH than other managers in order to extend the implications of this connection.

Furthermore, from the former conclusion I expected to find an interrelationship between different types of strategic organizations and the motives that impulse them to implement OSH actions. Once we have seen that defender and prospector models valued OSH over the

others, I expected to find them more motivated, even though they could have different motives. The results obtained respecting the test of the second hypothesis suggest that there are a significant relationship between types of strategic organizations and motives to develop OSH activity. Well, the statistical analysis indicates that defenders and analyser are more motivated for legal reasons, while prospectors highlight when wielding reasons in regards to HR relation. In conclusion, attending to the strategic planning of a company we could find some specific reasons to act in OSH.

Thought the motives to act in OSH are relevant in order to understand the business vision of the OSH, these ones don't offer a measure of the occupational risk preventive performance. Then, I tried to estimate the impact of the type of strategic organizations on the OSH activity. I assumed that the higher activity the higher performance in terms of OSH; even it is not so simple and another factors have been taken into account. This performance is calculated in basis to the OSH activities developed in the workplaces. In this case I found the third hypothesis supported by the empirical results as well. The statistical analysis indicates that there is a relationship between the type of strategic organization and intensity of OSH activity. This result is very significant because indicate that some company's strategic profiles are more likely to act more in OSH. However, the results follow a different dynamic that we could expect attending to the result of the first analysis. Well, prospectors valued more often OSH as business strategy; nevertheless defenders are more active in terms of OSH performance. This insight could be relational with the fact of one of the typical reactor's focus is the improvement of the quality of their products or services. There are standardized quality systems that facilitate to improve performance in the field of occupational risk prevention and increase awareness of the need to take active measures. In short, this could explain this effect, but it should be demonstrated with a deeper analysis.

Besides, the results indicate that there is a gap between the strategic planning and OSH performance by prospectors. So I consider interesting to investigate further this subject and detect the reasons of this lack of coherence. The results show some potential factors that explain this partially. For instance, the risk perception has been identified as explanatory variable in only this analysis; it seems prospectors tend to discern lower rates of occupational risk in their workplaces. But there could be something else behind that, because another significant factor is the sector of the enterprise. Well, the majority of the prospector companies belong to services sector and this is usually seen as low occupational risky environment. In brief, this lower OSH performance could depend more significantly on other factors than on prospector strategic planning. Thus, the analysis of the hypothesis in relation to the OSH performance draws several predictor factor which suggest complex interrelationship that need to be studied in more detail.

The last hypothesis led me to investigate into the different expertise disciplines in OSH. The result obtained for the expertise discipline variables do not support the questioned hypothesis. These are based on the assumption that as different types of strategic organizations are more representative in some sector than in others; this could influence them to assess some type of risk more than other type of organizations. The explanation of the failed hypothesis could be found in relation to the current normative that regulates strongly the risk assessments, and I base this on the fact that the studied companies generally performed a high level of assessments. I would like to add that these assessments do not want to mean that the enterprises always took actions. Possibly, it would be interesting to study the expertise discipline taken as measure the preventive actions instead of the risk assessment.

In sum, these findings have some interesting points that could indicate some lines of investigation. This has been an exploratory study limited to the Spanish small companies, but I expect some of the results to encourage researching further on this topic. First, I demonstrated that the Snow and Miles organizational typology could be applied to the small companies in the studied survey, and it is quite plain to classify some formal planning into the established categories. Hence these categories are defined I understood that some different tendencies could be registered in OSH. I read some papers that demonstrated the connections between these models of strategic organizations and economic performance, but OSH performance is harder to evaluate because the nature of the data. Even though, I found some relationships between strategic planning and OSH performance regarding preventive activity and OSH strategic value. This could help to understand how enterprises welcome OSH policies in their workplace, and furthermore, these findings could mean that there some OSH approaches more adequate than others in function of the type of strategic organization. Having said that, this encourage me to think that a suitable OSH system depends on the nature and characteristics of the company, so a standardized OSH system should be flexible in order to be located in so different scenarios.

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