

# Safety and Health at Work as a Factor of Competitiveness of Organizations

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## ABSTRACT

The Occupational Safety and Health (OSH) is a key factor in the competitiveness of organizations, it was developed by a research work, in Portugal, covering the full range of enterprises and public administration. The population was divided into micro, small, medium and large organizations and the number studied was 899. In total, there were sent about 18,800 messages. There were also carried out interviews with individuals involved in the world of work. That led to the conclusion that the OSH is a theme that cuts across any type of organization and the services themselves add value to the OSH, which is a relevant factor in competitiveness. So far, no work of this nature was yet carried, based on the following assumptions:

- H1 - Action of OSH Services contributes to decrease Occupational Accidents;
- H2 - Action of OSH Services helps to reduce Absenteeism;
- H3 - The working conditions contribute to increased Competitiveness;
- H4 - OSH Services are an investment, not a cost.

OSH Services contribute to the improvement of working conditions. As a result, accidents at work and absenteeism decrease, resulting in greater productivity. This work also contributed to an overview of the degree of implementation of OSH Services.

**Keywords:** Occupational Accidents, Absenteeism, Occupational Safety and Health, Competitiveness

## INTRODUCTION

The present work is due to the fact that, so far, there are no studies or objective parameters that directly establish a correlation or dependency of "Safety and Health at Work as a Factor of Competitiveness of Organizations".

There is a noticeable attempt to change with regard to the implementation of Occupational Safety and Health Services (OSH Services) in organizations, including public ones, and it may be an evidence that there will be reasons to admit the possibility of a close relationship between the existence of OSH Services and Competitiveness of organizations.

It is therefore important to study the extent to which the existence of OSH Services in an organization makes it more competitive with others, notably through the analysis of indicators such as productivity, working conditions, accidents at work and absenteeism.

Behind all this work, there was always the underlying question "to what extent the occupational safety and health (OSH) is a factor of competitiveness for organizations?". To answer this question, it has to be divided into others that allow, through the indicators cited above, to get more specific answers and that, objectively, enable the construction of a final credible, sustained and comprehensive answer. These questions, around of which the

investigative process unfolded, are as follows:

What is the correlation between work-related accidents and OSH services?

What is the correlation between absenteeism and the OSH Services?

What is the correlation between working conditions and competitiveness of an organization?

What makes an organization want to invest in OSH Services?

Having the previous questions as a base, it is intended to test the following hypotheses:

H1 - Action of OSH Services contributes to decrease Occupational Accidents;

H2 - Action of OSH Services helps to reduce Absenteeism;

H3 - The working conditions contribute to increased Competitiveness;

H4 - OSH Services are an investment, not a cost.

Aiming what was described earlier, a series of exploratory interviews were made to civilians related to work at the highest level and a questionnaire was carried out at Portuguese organizations.

The field is vast and therefore the Conclusions contained in the final part of this work will not be enough. On the contrary, they are a launching pad for further deepening and exploitation of known variables or others related with the subject at hand.

## **GENERAL CHARACTERIZATION**

When it comes to an Organization, it is important to thoroughly define this concept, so that there are no doubts about the subject on which you want to focus the study. There are other concepts such as Institution and Company, in order to allow the perception of common and different features.

The concept of organization is somewhat generic, resulting from a range of definitions of various authors and frameworks. However, according to Feijoo, it converges consensually for a panoply of features that will serve as a background in this work for the understanding of the different types of organizations studied.

There are several approaches to the concept of Organization, and the one that seems sufficiently comprehensive to encompass all kinds of organizations over which our work is focused, according to Joao Paulo Feijoo, has the following particularities:

- A social entity, i.e., it consists of a group of people, who are the members of the Organization;
- Have a collective purpose (Mission), which is the argument for these people, their members to get together and cooperate. The mission also provides the direction needed to align their efforts and acquire efficiency; this mission is continuous, i.e. it is not enough to be implemented just once. On the contrary, it must be ensured in a continuous and permanent way, which implies an indefinite duration for the Organization;
- It is equipped with a system which is indispensable to ensure the achievement of that Mission. This system lets you plan the progression towards the goal, detect and correct deviations and organize the collective effort effectively and efficiently. To do this, it distributes differentiated and complementary tasks and responsibilities to its members (positions and functions), it assigns them the necessary authority for its implementation, it defines the relationships between these positions and functions and establishes a set of rules that govern and restrict its action.

- It is an open system, which distinguishes its external environment by a border (e.g. rules that distinguish the

members from non-members) but interacts with the one with greater or lesser intensity.

Its existence is usually a compromise between effectiveness and individual freedom, in a way that the group is able to solve problems beyond the reach of its individual members and those members renounce to the loss of individual freedom (to align, by complying with the limits of their role in the Organization) in exchange for the benefits of belonging to that group.

On the other hand, a company is a particular form of an organization, differentiated mainly by its purpose, which aims to profit as a fair retribution for the production and supply of goods and services to economic operators to whom these goods or services represent value (market) and therefore are willing to pay for them. In everything else, a company verifies the criteria before referred to as characterizing an organization.

The concept of Institution offers, above all, a semantic problem. In its general sense, means any device designed to govern the behavior of individuals in a given social group. In this sense, the law, the family, the contracts, among others, are institutions. Yet in this sense, certain organizations may be considered institutions, especially if their purpose or mission has a transcendent nature, that is, the quest for the common good beyond the individual interests, as well as a permanent nature, i.e. beyond the duration of individual lives. The organizations like churches, universities, scientific societies, government agencies, among others fit this definition.

Thus, the existence of organizations that meet the requirements of an institution originated a narrower sense of this term. In turn, it is the verification of the principle of transcendence that seems to be behind the application of this name to organizations considered socially more "noble" for its importance or "seriousness". Hence, generally speaking, nonprofit organizations are commonly referred to as institutions such as the private institutions of Social solidarity. For the same reasons, but with an opposite effect, banks used to be designated (or they self-designate themselves) as banking institutions, but this aspect dates back to the time when its purpose was still socially considered "noble"...

To complete the semantic picture, there is the concept of Association that is applied to organizations that are characterized by at least one of the following aspects:

- Voluntary nature of membership and individual contributions;
- Purpose of mutual aid;
- Non-profit;
- Free Constitution, without any restrictions (freedom of association) or need to record (even if, for reasons of legal protection, registration is recommended or required and, if so, subject to certain formal requirements, such as, for example, rules of acquisition and loss of associated quality, composition and functioning of the governing bodies, etc.);
- Individual Contributions non remunerated;
- Equality of duties and rights of all its members;
- Non-applicability of the principle of limited liability.

## **The Competitiveness of Organizations**

The competitiveness of an organization can prove itself through distinct parameters, depending, fundamentally, of the branch of activity concerned.

Generically, it is calculated from a set of indicators that are evaluated, in order to determine the placement of a particular organization in the competitiveness index and it is reached when positive results are gathered for these indicators, which are analyzed in the course of the formation of value on the part of the Organization and are as relevant as the valuable they help to produce.

The indicators are measuring parameters of certain assumptions or levels, with the aim of establishing a parallel between what's going on in an organization and what is the result of studies and research and are more credible the more they are used.

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It is considered in this study, as direct indicators, the Work-related Accidents, the Work Conditions and the Absenteeism, which are the ones directly related to OSH. If for the Work-related and Absenteeism it is relatively easy to establish this relationship with the OSH, for the Work Conditions it is not so evident, since the work of OSH Services is not exactly measurable; its importance is reflected in other ways, implicitly. However, it also translates into actions and behaviors where one can check the existence of a culture of prevention and safety, which contributes to the improvement of Work Conditions and, consequently, to the increase of the satisfaction of workers, which indirectly leads to an increase in productivity, generating added value for the organization. In this way, and taking into account that the creation of value increases the competitiveness of an organization, the OSH Services and the Work Conditions created by them are an indicator of competitiveness.

But is it true that the existence of OSH Services leads to more competitive organization? According to Abel Pinto (PINTO, 2005: 23), “organizations are concerned about the relative benefit analysis that arise from the enforcement of legislation [...] to such an extent that the expenditure in this area is starting to be seen as an investment rather than a cost. And, when thinking about applying an investment, it is intended a return. In the field of OSH, the return comes when the indexes of accidents decrease, and with them decreases the absenteeism and the direct materials cost due to accidents”. These values are measurable and quantifiable. However, there are others which are no longer so easy to measure, such as “the improvement of organizational climate, [...] improving health and well-being, motivation and the increase of the awareness about OSH related matters (with the consequent increases in productivity and quality, achieved through the reduction of loss) ...” (PINTO, 2005: 24).

## **SST – Concept and Framework**

The OSH Services deal with questions related to OSH issues of workers in their workplaces. These services may take various forms, as described in article 74 of the law of 102/09 of 10 of September: Internal, External and Common. There are still some specificities, which are the figures of the Designated Worker, Employer and Employee Representative. However, even though they are a legal imperative, their effective implementation is far from being effective, taking into account information collected over the course of a couple of interviews, notably with the Executive Coordinator of ACT (Authority for working conditions - ACT).

According to Oliveira, “all entities must have an organized OSH Service [...] The existence of this service in the workplace should be seen as a factor of productivity and competitiveness for businesses. The fundamental objectives of the implementation of these measures are, in particular, the reduction of accidents at work and the consequent decrease of economic and above all human costs” (OLIVEIRA, 2007: 53).

Another author, Celeste Jacinto, argues that “companies operate, nowadays, in an increasingly global context. Their competitiveness depends largely on the capacity and ability to adapt to new challenges. [...] it is an important way of learning and of improving working conditions and motivation, which is, among all the challenges, the most decisive for the success of the company” (JACINTO, 2007: 6).

There is a consensus at different levels, in regard to the importance of the competitiveness of companies. If, on the one hand, the productivity is, without doubt, the fundamental pillar for an organization to be competitive, on the other hand “one can observe a set of signals which refer to the potential of new management practices and qualitative renewal of specialization profile in the Portuguese business structure [...] and incorporating one or more components of investment: [...] quality systems, safety and environmental management; [...]” (MORENO, 2005: 3). Considering the opinion of this Economist, security systems, which are an integral part of the OSH Services, are a “factor of differentiation in the corporate profile”.

## **DATA ANALISYS**

### **Sample Population**

At the level of the existing organizations in Portugal, for the purpose of the sample population used, it was considered only the Continental territory. The reason for this pre-selection was that, for the OSH-related affairs, the autonomous regions have legislative autonomy, so they might not apply equally what is laid down in the continental

region legislation, which could affect the final results.

Initially, it was thought that public organizations should not be included, since, according to the interview conducted by the Executive Coordinator of the ACT, the implementation of the OSH Services in this type of organizations was in its first steps. This situation is due to the recent requirement for the implementation of OSH services, forced by the law of 59/08 of September 11. However, there are already good examples, not only in the process of implementation, but also in full operation.

Considering the assumptions above, the study was based on the Portuguese continental territory business population and on entities of Central and Local public administration.

## **Sample Selection**

For this study there was used the type of probability sampling in data collection. The values have been verified using the software BioEstat 5.0.

When analyzing certain data of a given statistic population, there is always a question: how much of this population is necessary for the study?

It's not always easy to answer to this question, on the contrary. It's necessary, in almost all situations, to make the selection of a subset of entities of the population considering the focus of the study, check it and then extrapolate it to the global population, with a margin of error previously assumed.

This whole process is accomplished with the use of sample selection methods for statistical purposes. The sample may be quantitative nature, "quantitative population subgroup for which is collected the data and must be representative of the population", or qualitative nature, "analysis unit or set of people, contexts, events or facts used to collect the data without necessarily being representative of the universe". (SAMPIERI, Roberto et. Al., 2006: 251; 252). In the case of this study, it is considered that the sample must be representative of the population universe, therefore it is of quantitative nature.

The samples are, on the other hand, divided into two large groups: the probabilistic and non-probabilistic groups. Basically, a probabilistic sample is a "subgroup of the population in which all elements have the same probability of being chosen" and a non-probability sample is a "subgroup of the population in which the choice of elements does not depend on the likelihood, but on the characteristics of the research". In this work, it was applied the probabilistic sample, since any company could be selected for analysis.

After selecting the type of sample to be applied and having chosen, in view of the characteristics of the population and the objectives of the work, to establish four groups within the total of enterprises, surfaces the question of knowing, within each population, the sample size to be extracted.

As the general population was divided into the four organizational groups previously referred, the sample was a stratified probability sample, which applies in cases where the elements of the population have a specific attribute that distinguishes them from others. This attribute, in this case the level of personal in service, which determines the type of company, is significant and it would prevent, for example, that a large company (in much smaller number) would have much less likelihood of being selected when considered in conjunction with a micro-enterprise (in much greater number). Consequently, the stratification greatly attenuates this difference of probabilistic selection. "The stratification increases the precision of the sample and implies the deliberate use of different sample sizes for each stratum" (SAMPIERI, Roberto et. Al., 2006: 259).

The process based on random numbers was chosen. The sample was obtained by the Portuguese firms list provided by SNI (Statistics National Institute), having been assigned to that list sequenced numbers.

The numbers that resulted from the application of the method identify the companies in the sample. They were contacted later by e-mail, to obtain the answers to the questions contained in the sent questionnaire.

The results were treated by sets of organizations, but after they were put together only a single cluster. This set is the most comprehensive of all, so that it better mirrors the Portuguese organizational reality (Mainland). For this reason, the corresponding graphs are presented regarding all of the questions of the survey.

It turns out that small organizations were those which responded in greater numbers (33%) (371), followed by the medium-sized (28%) (315), micro (21%) (236), and, finally, the large organizations, (19%) (213). As for the time of existence, antiquity prevails, because 56% (638) have more than 20 years and 27% (311) have between 10 and 20 years. Most part is private, with 89% (667).

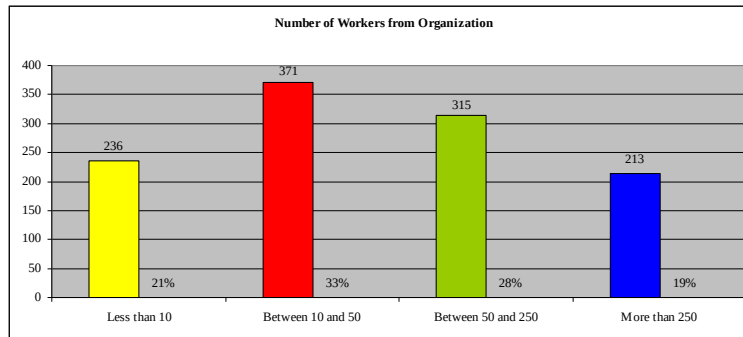


Figure 1 - Dimension of Organizations

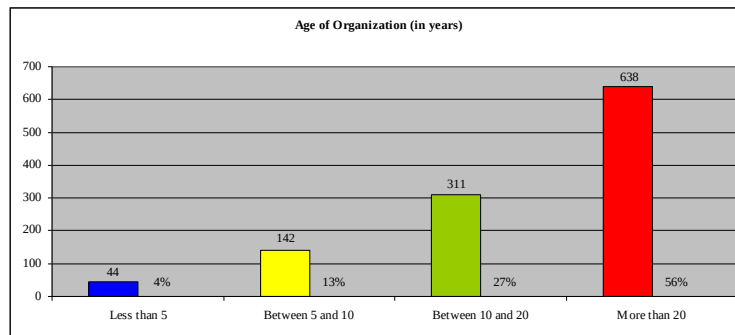


Figure 2 - Age of Organizations

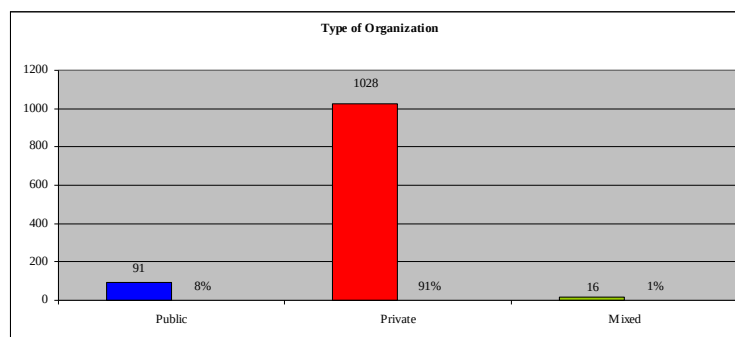


Figure 3 - Type of Organizations

Concerning OSH Services, 92% (1042) declares to have them, and among these, 73% (762) opted for External. The expression of the Common modes, Designated Worker and employer is residual. Most of these services were implemented in the timeline between 5 to 10 years ago (45%) (474), less than 5 years received 26% (271) of responses and between 10 and 20 years 23% (237). There is an inverse correlation between the age of organizations and the time of implementation of OSH Services, because most organizations have a larger time of existence, opposite to the time of operation of OSH Services. This may be evidence of the emergence of the need for OSH <https://openaccess.cms-conferences.org/#/publications/book/978-1-4951-2100-5>

Services on the part of organizations and as a response to the abundant legislation in this area.

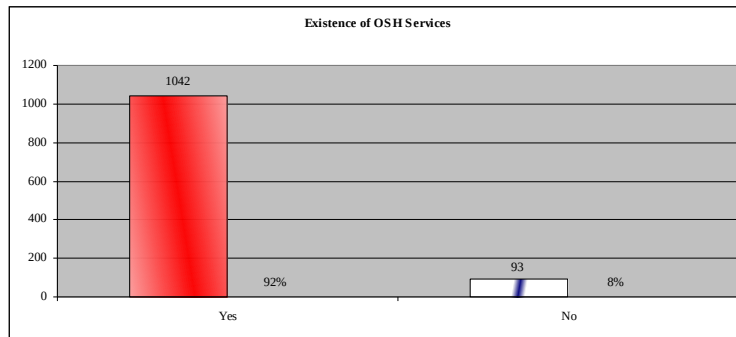


Figure 4 - Existence of OSH Services

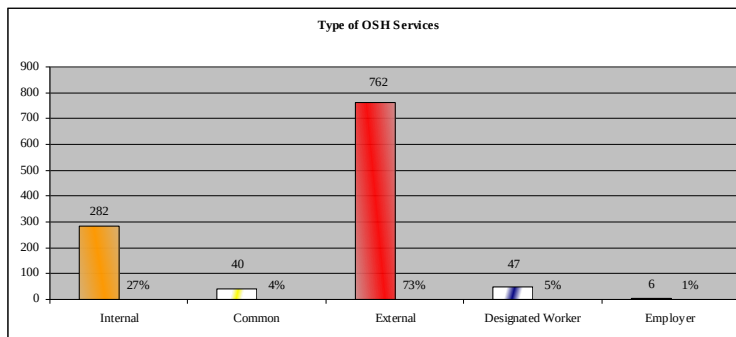


Figure 5 - Type of OSH Services

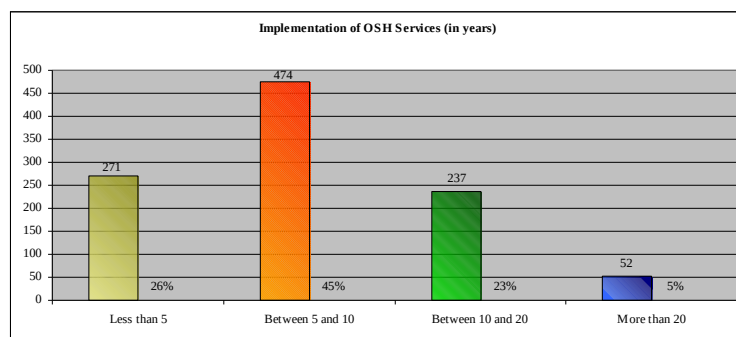


Figure 6 - Implementation of OSH Services

Concerning the relation OSH Services/Productivity, 71% (742) consider that the OSH Services contribute to an increase of productivity. As for the influence of OSH Services on reducing the Work-related Accidents, 40% (414) understand that Yes, 53% (552) do not see any kind of relation between those factors and 6% (67) understand that not. As for Absenteeism, 20% (212) think the OSH relates with that decrease, 12% (126) think not and 66% (692) do not find any relation between both factors.

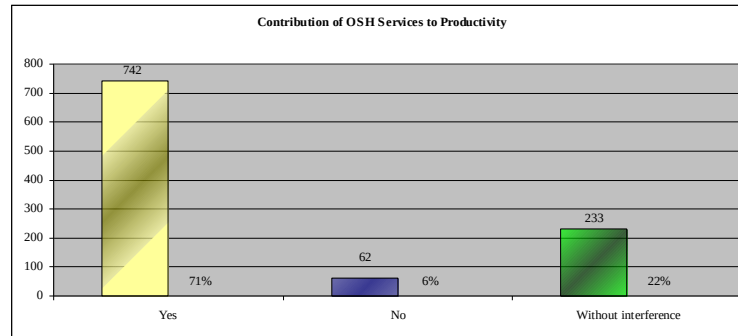


Figure 7 - Contribution of OSH Services to Productivity

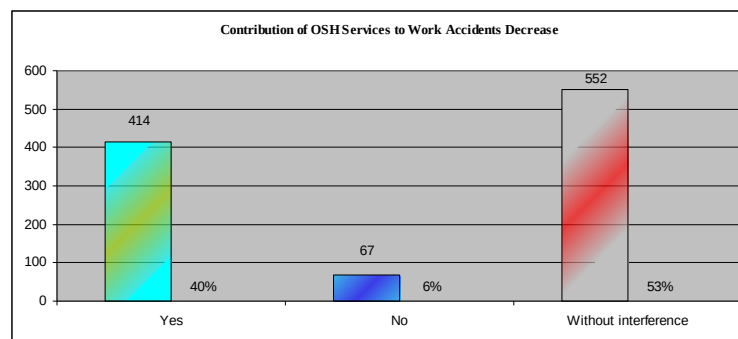


Figure 8 - Contribution of OSH Services to Work Accidents Decrease

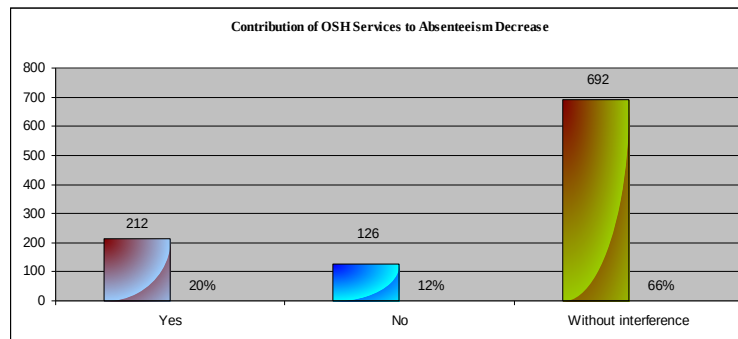


Figure 9 - Contribution of OSH Services to Absenteeism Decrease

The data obtained allows proving the hypotheses H1 - The OSH services action contributes to the reduction of work accidents and H2 - The OSH services action contributes to a reduction in Absenteeism. It is important to refer, however, that a good percentage of the organizations indicates a position of indifference regarding the actions of OSH Services.

A considerable percentage (78%) (885) argues that the OSH Services are suitable and 20% (226) have contrary view, assigning 58% (131) the justification to the response with the lack of adaptability of OSH Services to the reality of organizations and with considering those an unnecessary expense (32%) (72).



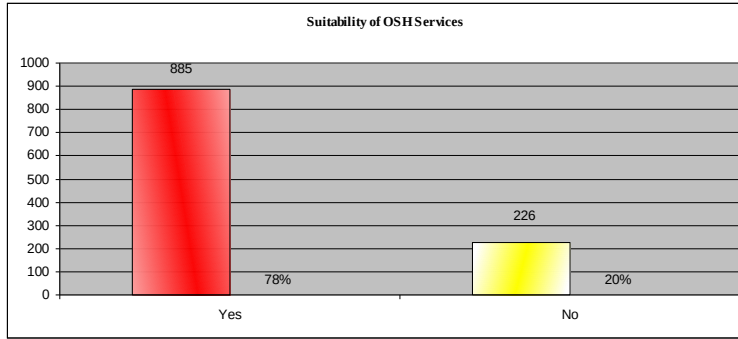


Figure 10 - Suitability of OSH Services

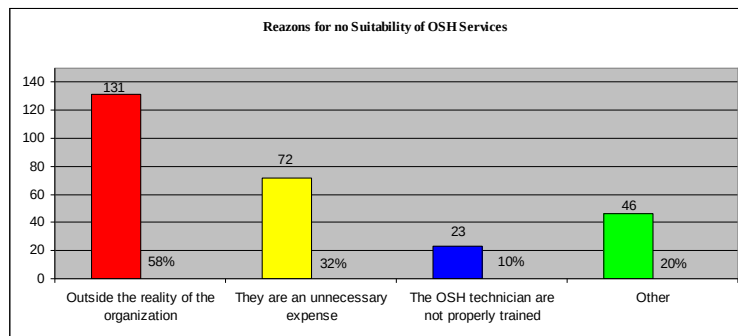


Figure 11 - Reasons for no Suitability of OSH Services

There are still 74% (836) of organizations that understand that OSH Services should be implemented in all organizations, and this percentage slightly decreases (76%) (866) when it comes to the possibility of using the NHS for the health issues at work, on the part of micro-organizations and individual entrepreneurs.

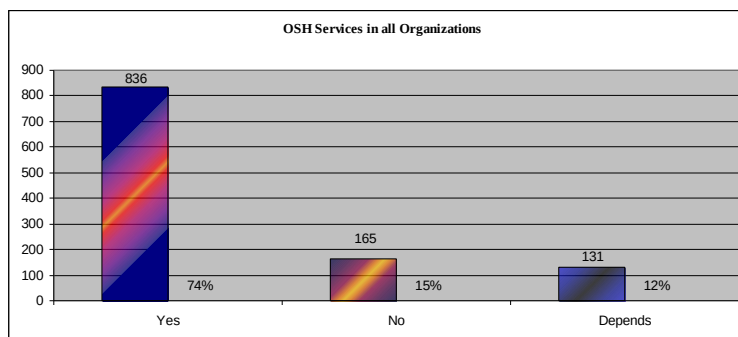


Figure 12 - OSH Services in all Organizations

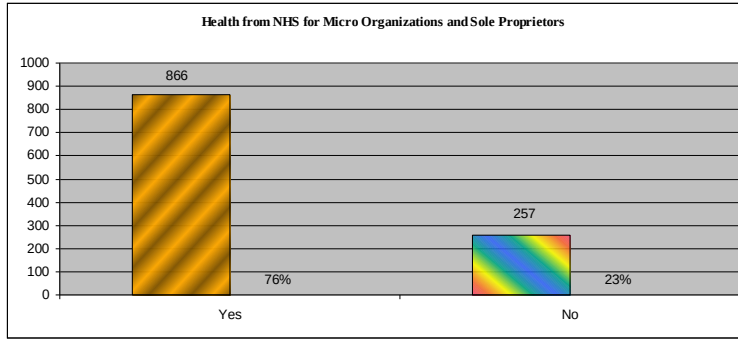


Figure 13 - Health from NHS for Micro Organizations and Individual Entrepreneurs

The percentage is much higher (98%) (1114) when it comes to the influence of Work Conditions on the competitiveness of organizations. A value also high (84%) (959), though not as expressive, is the understanding that the cost of OSH Services is an investment. Based on these results, it is possible to verify H3 - Working conditions contribute to the increased competitiveness and H5 - OSH Services are an investment and not a cost.

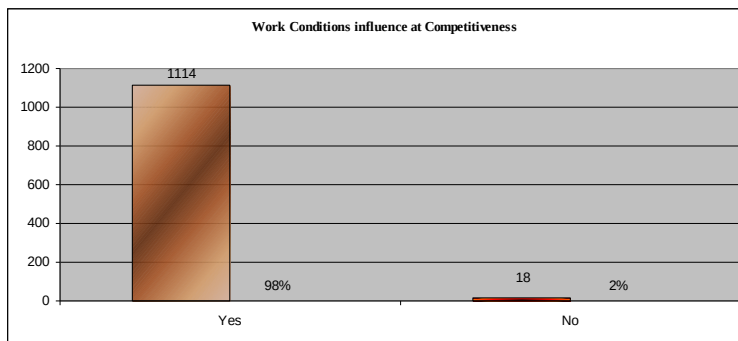


Figure 14 - Work Conditions influence at Competitiveness

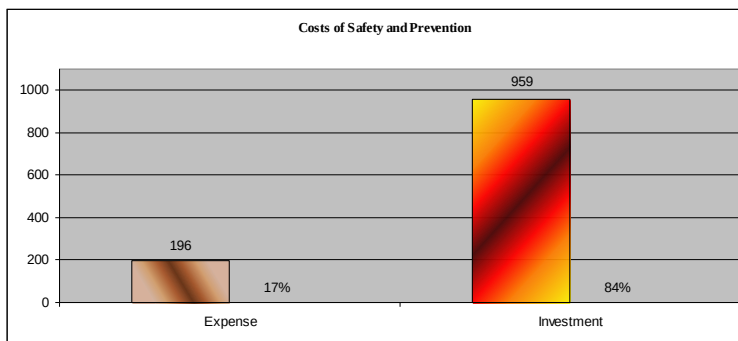


Figure 15 - Costs of Safety and Prevention

Regarding the findings made observing the answers given by the different sets of organizations, cemented by this last set, global reflection, and by the expression of the percentages on issues that include the indicators, it turns out <https://openaccess.cms-conferences.org/#/publications/book/978-1-4951-2100-5>

that there is an obvious direct relation between the existence of OSH policies, particularly at the level of the effective functioning of the OSH Services in organizations and the competitiveness that they have. The OSH Services are therefore a competitive advantage to those who have them.

## **CONCLUSIONS**

The starting point for this work on both strands indicated (the questionnaire to organizations and the interviews) was the question: "to what extent the OSH is a competitiveness factor for organizations?"

The OSH services, when well implemented and suited to the reality of organizations, contribute to the improvement of working conditions. As a result, work-related accidents and absenteeism decrease, resulting in increased productivity. It is concluded, therefore, that OSH, implemented by OSH Services, is a factor of Competitiveness of any organization, as demonstrated by the results of the investigation carried out and complemented by the views expressed in the interviews.

The above indicators (working conditions, accidents at work, Absenteeism and OSH Services) were analyzed and relationships were established with each other, as an attempt to prove or disprove the following assumptions:

- H1 - Action of OSH Services contributes to decrease Occupational Accidents;
- H2 - Action of OSH Services helps to reduce Absenteeism;
- H3 - The working conditions contribute to increased Competitiveness;
- H4 - OSH Services are an investment, not a cost.

So far, there had not been any work of this nature, so this could be seen as a starting point for future research. Anyway, the work done led to some conclusions, which are described below:

- There is a direct relation between working conditions and competitiveness of organizations, as hypothesis H3 was proved - working conditions contribute to increased competitiveness;
- The existence and proper functioning of the OSH Services are directly related to the competitiveness of an organization, to the extent that it contributes directly to increased productivity, through:
  - the reduction of work accidents - proved the hypothesis H1 - the OSH services action contributes to the reduction of accidents at work;
  - the decrease absenteeism - H2 - the OSH services action contributes to a reduction in absenteeism;
- Organizations consider the costs with the SST an investment, which presupposes the increase of a competitive advantage, because, otherwise, it would not be carried out, despite legislated. Therefore, the hypothesis H5 has been proven – OSH Services are an investment, not a cost;
- The biggest and better companies to work for have OSH Services, which reveals a bet in those services as a factor of improvement of working conditions, by the increased productivity they cause and, finally, a factor of competitiveness, allowing them, to be at high levels in terms of invoicing; the bet on internal services is a competitive advantage, so that we continue to maintain a high level in the formation of safety and hygiene technicians to keep this advantage;
- Regarding the characteristics of some organizations, including some of the micro and the Individual Entrepreneurs, there should be a strong divulgation work by the ACT and implementation of the model of Designated Worker and/or Employer, with the underlying formation, to suppress the gaps in terms of safety at work. As for the health at work, in regard to these organizations, it is suggested the review of the legislation in order to allow greater flexibility, on the one hand, in the access to these services and to demand, on the other hand, on the part of those who pay, greater professionalism and rigor;
- External services must be done by professional organizations and duly prepared for that purpose, acting in a personalized way and perfectly adapted to the reality of the organizations they serve.

This work has shown that not all organizations, despite being a legal requirement, possess OSH Services. Also this work contributed to a global vision of the Portuguese organizations and the degree of implementation of the different typologies of OSH Services. The contact with civil society at the highest level, in terms of OSH, provided a perception of the importance of this matter in the Portuguese organizations. In addition, either the inquiry to the organizations or the list of interviews carried out allowed to show to civil society that OSH is a concern on the part of the military institution; the results obtained proved some questions so far only thought truthful and are, on the other hand, the starting point for further research on the matter.

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