



Dealing with SMEs as a whole in OHS issues: Warnings from empirical evidence

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ABSTRACT

Not surprisingly it has been shown that there are higher accident rates and larger magnitudes in Small- and Medium-sized Enterprises (SMEs) if compared with the case of the larger ones. Some studies suggest that SMEs have serious problems aggravated by limited access to human, economic and technological resources. Moreover, it is now acknowledged that methods developed specifically for Large Enterprises (LEs) cannot be simply transferred to smaller enterprises. Although the debate concerning essentially the size of the enterprises and their corresponding accident rates is ongoing, very little attention is paid to the difference between the Micro- (MiEs), the Small- (SEs), and the Medium-sized Enterprises (MEs). Indeed, in most of the cases, SMEs are bundled together and considered as a whole, in opposition to LEs. In some cases SEs and MEs are studied separately, but only the difference in terms of accident rates is highlighted. Instead, important information in terms of performance and organizational, cultural and economic differences between MiEs, SEs and MEs exist. Within the implementation of the E-merging project (financed by the Italian National Institute for Insurance against Occupational Accidents – INAIL), some differences have been identified on the basis of two existing data sources.

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1. Introduction

1.1. SMEs and OHS issue: a troubled relationship

With respect to the Occupational Health and Safety (OHS) issue, not surprisingly it has been shown and debated in peer-reviewed papers that there are higher accident rates (Fabiano et al., 2004; Kines and Mikkelsen, 2003 for major injuries; Mayhew, 2000; Stevens, 1999 for major injuries; Salminen, 1993; McVittie et al., 1997; Suruda and Wallace, 1996; Suruda and Emmett, 1988 for fatalities; Nichols, 1989, to comment on Hopkins and Palsler, 1987) and larger magnitudes (in terms of “lost days”; see Fabiano et al., 2004; McVittie et al., 1997) in Small- and Medium-sized Enterprises (SMEs) if compared with the case of the Larger ones (LEs). The main reasons have been taken back to a general limitation – with respect to LEs – of human, economic and technological resources (Micheli and Cagno, 2008; Beaver, 2003 referring only to recent works). In particular, some authors (Hasle and Limborg, 2006; Champoux and Brun, 2003 for a review) focused on the lack of capacity of small enterprises to assess and control risks in an effective way.

A not so far but slightly different point of view on the problem highlights, on one side – as suggested also by Hasle et al. (2009) – the role of the low level of occurrence of accidents and injuries a SME can experience. It lowers risk perception, alters approach to risk control and changes the management priorities. In this case, only large severity accidents and injuries can have a beneficial and long term – but obviously too late – impact on OHS management system.

On the other side, it highlights the difficulties a manager of a SME has to face in the day-by-day enterprise running. In fact in SMEs he/she is often also the owner and has no (or a very little) team to deal with all the company activities, in which OHS is one – even not the last – of a large number. Moreover, the characteristics of SMEs are so different that it is terribly difficult and expensive for preventive efforts to reach all SMEs (Walters, 2001) and become effective.

1.2. The E-merging project

In Italy, 72% of the employees work in SMEs (which account for the 99% of the sum of the enterprises), and they are affected by the 80% of the reported accidents. In particular, in the Province of Lecco (a province in Northern Italy) the relevance of the OHS issue within SMEs is even higher, at least in terms of number of employees and accidents): 94% of the employees work in SMEs (which account for 99,8% of the sum of the enterprises on the territory), and they are affected by the 94% of the reported accidents (source: dataset 2003–2005 INAIL – Italian National Institute for Insurance against

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Occupational Accidents – territorial office of Lecco; this is the most recent and complete domestic dataset available).

Hence, since July 2008 INAIL has financed (and is partner of the project) the Department of Management, Economics & Industrial Engineering – Politecnico di Milano to set up, in collaboration with API (Industrial Association of SMEs) in the Province of Lecco, the ‘E-merging’ project (“Electronic Tool for Merging SMEs’ OHS Data and Information to Support OHS Management and Improve Business Competitiveness”). The main objective of the project is to develop a software with a web-based interface capable of supporting SMEs in their safety management activities through the exchange of safety-related data and information and of certain management parameters of the enterprise and thus improve business competitiveness. On the one hand, the tool should facilitate the day-by-day OHS management from documentation management to due dates respecting to legislation requirements compliance; on the other hand it should help to make the most proper – and also long term – decisions for safety interventions by providing all – and only – the information needed and sharing secure data with a community of SMEs with similar characteristics and directions with INAIL. More specifically, the project aims at creating customized – on the basis of the specific SME characteristics translated by the software model into specific parameters – information and training tools for workers and enterprises to improve their safety management, and to properly prioritise investments in safety interventions.

In fact, with SMEs does not exist any chance of success – especially in a field of low level of occurrence like the OHS management – unless within the paradox of analysing them as a global phenomenon and treating them singularly, on the basis of their specific characteristics and without distorting the weak mechanism that is their company sustainability. In doing that, three are the logical pillars on which an effective, but necessarily light, course of action should be based on:

- (1) sharing the knowledge;
- (2) identifying the particularity;
- (3) intervening specifically.

The main idea of the project is that the OHS manager could have – by means of a simple internet secure connection – a map of enterprise OHS criticalities self-highlighting – by means of green, yellow and red lights – and, besides facilitated accidents register or risk analysis documentation management, a list of precise suggestions on how to intervene on them and to who refer to. The effort required from an OHS manager is related to a very simple, but effective modelisation of the enterprise and its main characteristics by means of some process templates. This modelisation (in terms of activities, places, and technologies) enables to compare data and information stemming from a large number of enterprises, so as to identify interesting risk patterns, estimate a “realistic” probability of occurrence, and highlight other critical points a single enterprise never experiences till the accident or injury happens.

This is also coherent with the [European Agency for Safety and Health at Work \(2004\)](#) and [Tait and Walker \(1998\)](#), who state that a simple but adequate system of safety management for SMEs is necessary but hard to achieve; and also with [Walters \(2001\)](#), who states that it is difficult and expensive for preventive efforts to reach all SMEs.

The E-merging project is currently focused on the metalworking industry in the Province of Lecco – even if its committed scope embraces all domestic territories and sectors –, which makes up 33% of the sum of the reported accidents, and employs 34% of the workforce. This kind of industry is quite relevant also for Italy (as a whole), where it makes up 14% of the sum of the reported

accidents, and this is relevant for the later extension of the implementation of the project itself. For the success of the project, it has been therefore vital to have a deep insight on the specific characteristics of the enterprises within the whole “SMEs”, in order to properly customize the output.

1.3. Setting the problem

Nevertheless, the lack of insight in the practitioners world and in scientific literature is plain. In fact, the SMEs are:

- considered and supported as a whole by the specific Associations (as an example, see the European Agency for Safety and Health at Work);
- regulated as a whole (even together with LEs);
- generally studied as a whole scientific phenomenon, in terms of OHS-performance;
- generally studied as a whole scientific phenomenon, in terms of OHS-factors (perceived importance of safety, investments in safety interventions, ...) which enable the OHS-performance (apart from some recent studies; as an example, see [Sørensen et al. \(2007\)](#)).

In other words, although the debate concerning the size of the enterprises and their corresponding accident rates is ongoing, very little attention is paid to the difference between the Micro- (MiEs, employees ≤ 10), the Small- (SEs, $10 < \text{employees} \leq 50$), and the Medium-sized Enterprises (MEs, $50 < \text{employees} \leq 250$), as defined in the 2003/361/EC Recommendation; in the majority of the cases, SMEs are bundled together and considered as a whole, in opposition to the LEs.

Instead, similarly to what the literature of the early 1990s ([Oleinick et al., 1995](#); [Salminen, 1993](#); [Mendeloff and Kagey, 1990](#); [Leigh, 1989](#)) did only for Small- versus Medium-sized Enterprises concerning the OHS-performance, it has been deemed necessary to perform a comparative study in order to distinguish, within the SMEs, what happens in terms of:

- OHS-performance (both frequency – accident rate – and magnitude);
- OHS-factors which enable the OHS-performance;

respectively for

- Micro-sized Enterprises (MiEs);
- Small-sized Enterprises (SEs);
- Medium-sized Enterprises (MEs).

2. Research methodology

In order to perform a comparative study between Micro-, Small- and Medium-sized Enterprises in the metalworking industry in the Province of Lecco, with respect to OHS-performance and OHS-factors, two different datasets have been used and different methodologies have been implemented.

As for the frequency and the magnitude of accidents (OHS-performance), INAIL – territorial office of Lecco – has given Politecnico di Milano the exclusive right for using the most recent and complete accident (anonymous) dataset available for the years 2003–2005 for data analysis. The database includes all the records of the accidents happened in SMEs from metalworking industry in the territorial office of Lecco. On the one hand, the frequency has been analysed in terms of average values with respect to every size of the enterprises, in order to confirm/disconfirm the literature

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