

A Programme Theory evaluation of initiatives to support Health and Safety improvement: an Italian cross-sectional study

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Abstract: Companies of all sizes and sectors have been realising that they can no longer overlook the adverse economic and social effects of poor health and safety. Therefore, a constantly growing number of them is keen to improve workers' health and safety conditions, by putting in place robust and effective Occupational Safety and Health (OSH) management. However, companies, especially Small and Medium-sized Enterprises (SMEs), might need external help to manage OSH interventions since they lack resources and skills. Thus, national health authorities in different countries are trying to reduce this gap by promoting support initiatives. The purpose of this research is to analyse several recent support initiatives, developed in Italy by the local health units (ASL in Italian), which aim at supporting companies in reducing injuries and illnesses. To this end, a survey has been sent to three of the most active ASLs asking them to describe support initiatives, paying attention to the processes that led to their design and development. The Programme Theory has been used to examine each of these initiatives because it allows detecting the mechanisms that produce consequential outcomes in specific contexts. Therefore, it has been possible to understand what led to the success or failure of any initiative and why it happened, so determining possible beneficial and detrimental mechanisms that affected the initiative's outcome. This work emphasizes the strengths of the programme theory for reviewing initiatives and highlights some likely areas for further development; in particular, the programme theory in nature does not target a longitudinal view, thus complicating the assessment over time of initiatives' effectiveness and sustainability, which is an undisputed priority for health and safety improvement at the workplace.

Keywords: Programme Theory; support initiative; Occupational Safety and Health; mechanism

1. Introduction

Private and public organisations are devoting increasing attention and resources to OSH that is becoming an integral component of the organization management, no more regarded as a burden, hampering everyday operations, but an added value, facilitating organizational efficiency. Nonetheless, the knowledge in this field is growing fast, transforming OSH into practice is not so easy as it may seem (Hasle, Limborg and Nielsen, 2014). Continuously changing working environment, limited human, economic and technological resources are just a few of the challenges OSH has to cope with when facing the actual world (Micheli and Cagno, 2010; Rodrigues et al., 2020). New types of risks will consequently arise and further competencies for promoting and ensuring OSH will be required (Badri, Boudreau-Trudel and Souissi, 2018; Zwetsloot, Schmitt-Howe and Nielsen, 2020).

Understanding successful strategies for increasing the effectiveness of interventions at the workplace and improving workers' well-being is one of the leading

challenges for researchers and practitioners. It is still difficult to predict the real effectiveness of interventions (Fridrich, Jenny and Bauer, 2015), whose success is likely to be dependent on several factors. The nature of the intervention, the characteristics of the workplace and the external environment should indeed be considered when implementing OSH interventions in companies. However, interventions are rarely properly designed and monitored over time since intuitively developed by OSH managers, who often select the most common and not the most effective measures (Baril-Gingras, Bellemare and Brun, 2006). Having clearly in mind the mechanisms and the context that determine the outcomes is paramount to have a reasonable assurance that the intervention would be successful. However, OSH practitioners could be unable to properly identify mechanisms and contextual factors since their prior experience could bias their decisions (Hasle and Sorensen, 2011).

Designing, implementing, and evaluating OSH interventions are the three phases that should be equally considered to properly assess the results. Evaluating

interventions generates knowledge on solutions that work and others that, instead, should be avoided. Therefore, the evaluation phase, still often neglected, is crucial not only to monitor the effectiveness of a single intervention, but above all to enhance the design of the following ones (Olsen, Legg and Hasle, 2012).

Assistance external organizations can help overcome, or at least reduce, several barriers hindering the outcome of an intervention. As discussed by Cagno et al. (2016) and Hasle et al. (2010), companies (especially SMEs) can leverage the greater expertise and economic resources of intermediary organisations that can support them in implementing OSH interventions. Building local networks by connecting different organisations (non-governmental organizations (NGOs) as well as local government units) is essential to achieve sustainable OSH improvements (Kawakami and Kogi, 2005). There are several figures (employers, unions, bi- and tripartite bodies, professional organisations, certification agencies, etc.) playing an active role in the working environment. State policies are all influenced by these actors, so they should be considered when working environment policies are transformed into actual workplace practices (Hasle, Limborg and Nielsen, 2014).

In this context, the proposed paper focuses on recent support initiatives developed by local authorities in companies with the primary aim of reducing occupational accidents and diseases at the workplace. The next sections of the paper are structured as follows. *Section 2* details the methodology applied to gather and analyse data on support initiatives. *Section 3* presents the results of such analysis by showing the most prominent characteristics for each considered support initiative. *Section 4* critically discusses the results arising from section 3. *Section 5* draws the conclusions and proposes future developments.

2. Methodology and research framework

The analysed support initiatives have been developed in Italy and the Italian national health system is consequently the reference framework. The findings that this work provides might be useful outside the Italian context, as many countries, especially in Europe, rely on national and local entities which promote initiatives to support companies in improving their OSH management.

The local health units (ASL in Italian) play a prominent role in Italy by overseeing and supporting companies in their area of competence (Campo et al., 2020). In particular, we focus on support initiatives for OSH promotion developed by ASLs in recent years (about the last ten years). A survey has been submitted to three of the most active ASLs, in the northwest, northeast and south of Italy, to gather information about the initiatives developed and the results achieved. ASLs, in the Italian context, are the most suitable bodies for this kind of surveys because they know well the strengths and weaknesses in OSH management of their local competence area and can rely on a large range of companies. The survey included open-ended questions to

delve into the following topics: (1) the promoters of the initiative to understand whether it was part of a larger national project or was the expression of local needs; (2) the start and end date to place the initiative in time; (3) the reasons that led to the development of the initiative; (4) the goals set and the performed activities to reach them; (5) the recipients and the major actors involved; (6) the goals achieved; (7) the critical factors that hindered or even prevented the success of the initiative; (8) the (positive or negative) reasons that led to the conclusion of the initiative; (9) potential follow-up activities generated by the initiative.

The information on support initiatives gathered from the survey has been evaluated, paying particular attention to the processes that led to their design and development. In other words, OSH initiatives were not analysed as black boxes by just determining the inputs (goals) and the outputs (results), but the processes and mechanisms engendered by the initiatives were thoroughly examined. Indeed, it is generally believed that initiatives cannot be easily transferred to different contexts since their design and consequential success are closely related to the environment where they were born (Uhrenholdt Madsen et al., 2020).

The evaluation of the initiatives developed by ASLs has been conducted by applying two established theories in the OSH field: the programme theory (Bickman, 1987) and the institutional theory (DiMaggio and Powell, 1983).

The programme theory aims at defining the chain of events that produces determined effects. In the design and implementation phase, we are interested in *how* factors can combine by determining positive (beneficial) and negative (detrimental) impacts on the outcome; while in the evaluation phase, starting from the obtained outcome, we try to understand *why* we got that result. Evaluating OSH initiatives through the programme theory is probably one of the best approaches to adopt (Fridrich, Jenny and Bauer, 2015; Micheli, Cagno and Riggio, 2019). However, the programme theory alone is not enough to analyse initiatives that are strongly affected by the surrounding environment. Therefore, the realist analysis (Pawson and Tilley, 1997) has been combined with the programme theory to better understand how initiatives work. A realist programme theory tries to provide answers to the following questions: *what works, in what circumstances, for whom, and how* (Pawson, 2006).

The Institutional theory suggests that the social context (external factors) affects the organization’s behaviour and, as a result, its performances (DiMaggio and Powell, 1983). Even though this theory was initially applied to corporate companies, it may be easily transposed and reused to assess the mechanisms that play a major role in the initiatives’ dynamics. The three main external pressures (coercive, normative, and mimetic), identified by the theory, are in this work reinterpreted for OSH initiatives by considering the activities performed inside companies.

- Coercive mechanisms: activities that are mandatory by law and not possible to postpone (e.g., when companies have to comply with new regulations).

- Normative mechanisms: activities that can structure more professional processes for OSH management (e.g., by proposing guidelines, new methodologies).
- Mimetic mechanisms: activities that can be effectively applied in different environments by just re-contextualising them.

The purpose of the present work, therefore, is to evaluate recent initiatives developed by three of the most active ASLs in Italy to support companies in improving and preserving effective OSH management. The programme theory and institutional theory have been chosen for the analysis of those initiatives to deepen the chain of events that has determined consequential outcomes in specific contexts. Several insights have emerged and, in the following sections, the potential beneficial mechanisms leading to positive results and, vice versa, the common limitations related to those initiatives are below discussed.

3. Results

Through the questionnaires sent to the three ASLs, information on 13 initiatives has been gathered. Table 1 summarises all the initiatives by pointing out, according to the programme theory, the distinctive features that characterise each of them. The columns of the table have been conceived to support and guide the discussion in the next section. The rows depict the 13 initiatives grouped according to the ASLs' division: 4 for ASL (A), 3 for ASL (B), and 6 for ASL (C). In Table 1, the boxes are left blank if data on questionnaires are missing.

4. Discussion

The results gathered through the 13 initiatives, described in Table 1, are below presented through the programme theory by detecting similarities and differences between ASLs' initiatives. Having involved ASLs instead of companies has brought value to the whole analysis since it allowed to compare several support initiatives, diversified in terms of scope and industrial sectors, by just considering a few ASLs.

4.1 Theoretical framework

The context, mechanisms and outcomes are three major elements detected by the programme theory, however, an extensive framework for the analysis reported below has been created to spot more details in each initiative.

The environment represents the background in which the initiatives are deployed, and it can affect their development and success. The environment can be even the determinant that creates the need for an initiative (e.g., when criticalities are discovered in specific contexts).

Contextual factors are generated by the environment and can produce beneficial or detrimental effects. Positive factors enable to accomplish initiatives while negative factors hinder their full success, thus determining a gap between the initial goal and the final result.

Goals should be clearly stated before any initiative starts. Two types of goals are generally defined. Short-term (operational) goals are closely related to the activities developed during the initiatives and ensure that all the activities are completed as initially planned. Long-term goals, instead, are set according to the original reason that induced the initiative (e.g., reducing fatal injuries). Short-term goals are thus functional to long-term goals, the leading ones. Both short- and long-term goals can be generated by the surrounding environment where goals are set trying to leverage positive contextual factors and reduce the effects of negative ones.

Activities are developed to reach the goals set. They can be divided into two major groups: direct and functional. The direct activities target the identified goals (e.g., training, inspections) while the others are functional to develop direct activities (e.g., data collection and analysis on the injury rate).

Mechanisms determine the processes that take place when activities are performed. Therefore, they are generated by the performed tasks which, in turn, depend on the goals selected before. Two types of mechanisms are considered in this work: institutional theory's mechanisms (coercive, normative, mimetic) and the mechanisms specific to OSH initiatives identified by Uhrenholdt Madsen et al. (2020) (integration, learning, motivation, translation, attention).

Outputs are the results got in the short-term thanks to the tasks implemented during the initiatives. Sometimes, they do not answer the operational goals set at the beginning, since negative contextual factors hindered the final result.

Outcomes are the results got in the long term by monitoring the effects of initiatives over time. They are set out in the long-term goals and are crucial to be reached to answer the original need that triggered the initiative.

Not achieved results are usually caused by negative contextual factors, as said above. They can be related both to outputs and outcomes not reached in the short and long term, respectively.

Actors are a set of people, organisations, institutions (employers, trade unions, local units, etc.) that play an essential role in the development and management of the initiative.

4.2 Analysis of the results

There may be several reasons for projecting new support OSH initiatives for companies; here, as reported below, three major motivations have been detected in the 13 initiatives under analysis (see Table 1).

1. An action is directly demanded by companies that perceive the need to improve their OSH management (*A1 initiative*). The request generally comes from specific sectors or companies; hence the goals are generated by the surrounding environment where the initiatives are set.
2. New regulations and/or standards have been released and companies have to comply with (*C4 initiative*). Otherwise, if safety hazards and unsafe practices are

Table 1: support OSH initiatives' evaluation

| FACTORS/ ASL INITIATIVES | INITIATIVE | ENVIRONMENT (CONTEXT) | REASONS BEHIND INITIATIVES DEVELOPMENT | GOALS | | ACTORS INVOLVED | ACTIVITIES | NEGATIVE CONTEXTUAL FACTORS | OUTPUTS (SHORT-TERM) (if any not achieved) | OUTCOMES (LONG-TERM) |
|--|---|---|---|--|--|--|--|--|--|---|
| | | | | SHORT-TERM GOALS (practical) | LONG-TERM GOALS (conceptual) | | | | | |
| A NORTH- WESTERN ASL <i>Large number of SMEs, mainly in the mechanical sector</i> | 1 | Sectoral mechanical Sector | SMEs needed easy to use tools to deal with OSH, to self- evaluate occupational risks and to adopt best practices | Definition of main risk profiles, improving risk analysis and instituting best practices | | Employers, RSPP, RLS | Inspections, injury analysis, training | SMEs: distrust, lack of resources | All Short-Term Goals achieved | NO <i>(no specific indicators available)</i> |
| | 2 | Sectoral foundries and hot metal working companies | Increased number of injured workers | Definition of specific tools and procedures for efficient risk analyses on processes | Increasing risk awareness | Employers, RSPP, RLS | Seminars, surveys, injury analysis, risk assessment, training | SMEs: distrust, generic tools and procedures do not fit well | All Short-Term Goals achieved 48% of companies have updated new procedures for risk monitoring | 75% of companies now applies the risk analysis procedure 33% of companies now monitors near- misses |
| | 3 | Cross-Sectoral multi-sector different company size | Lack of awareness of the occupational physician's role | Evaluating the degree of involvement of occupational physicians and their relation with employers | | Employers, Occupational Physicians | Seminars, surveys, data analysis on the degree of involvement of occupational physicians | Poor adhesion | All Short-Term Goals achieved around 500 companies reached; classification of the companies in three areas (green, yellow, red) based on the degree of involvement | NO <i>(no specific indicators available)</i> |
| | 4 | Sectoral mechanical companies | Assessment of the workers' exposure to pollutants | Definition of specific tools and procedures for efficient risk analyses (exposure levels) | | Employers, Occupational Physicians | Sampling and analysis (90 workers), risk assessment (empirical) | | | |
| B SOUTHERN ASL <i>SES in the construction sector, service companies in a airport, a large company (steel mill)</i> | 1 | Sectoral seaports | Increased number of injured workers | Definition of procedures to improve OSH management, specific training to OSH figures | Establishing a network of actors and empowering information flow, reducing injuries | Employers, Workers, RSPP, RLS, INAIL, Labour Inspectorate, Fire Brigade, Employers' associations (ANIC, Confindustria), Trade unions (Cassa edile), Regional Joint Committees (CPT National Institute for vocational training (formedi)) | Seminars, surveys, injury analysis, risk assessment, training, inspections | Little involvement | All Short-Term Goals achieved following inspections have not encountered violations of health and safety matters | YES Established a lasting participatory network of actors NO Not proven injury reduction |
| | 2 | Sectoral construction | Increased number of injured workers | Definition of procedures to improve OSH management, specific training to OSH figures | Establishing a network of actors and empowering information flow, reducing injuries | Employers, Workers, RSPP, RLS, INAIL, Labour Inspectorate, Regional representatives, Trade unions, Regional Environmental Protection Agency (ARPA) | Seminars, surveys, injury analysis, risk assessment, training, inspections | Little involvement | All Short-Term Goals achieved | YES Established a lasting participatory network of actors ONGOING Monitoring of injury reduction |
| | 3 | Company specific large Italian steel mill | High injury rate | Enhanced monitoring and control of service companies operating in the steel mill, reducing injuries | Definition of main risk profiles, improving risk analysis and instituting best practices | Employers, Workers, RSPP, RLS, INAIL, Labour Inspectorate, Regional representatives, Trade unions, Regional Environmental Protection Agency (ARPA) | Injury analysis, risk assessment, training, standard procedures development | RLS hard to be actively involved | All Short-Term Goals achieved empowered prevention and protection service - from 19 to 45 units | YES Reduction in the number of injuries with more than 40-day prognosis Established a lasting participatory network of actors |
| C NORTH- EASTERN ASL <i>Large number of SMEs</i> | 1 | Cross-Sectoral multi-sector, different company size | Injury reduction by promoting OSHMS | Involving companies in adopting OSHMS, evaluating existing OSHMS | | Employers, Workers' associations, Trade unions | Proposing guidelines for OSHMS | Lack of human resources to promote OSHMS | All Short-Term Goals achieved (except for a low number of companies involved, less effective than projected) | NO <i>(an improvement initiative, no criticalities to overcome)</i> |
| | 2 | Cross-Sectoral SMEs | Lack of economic resources a barrier to efficient OSHMS | Disseminating OSHMS among companies and verifying the implementation | | Employers, Workers' associations, Trade unions, External consultants | Document and standard procedure analysis (provided by companies) | | 3705 applications received - 819 founded companies (except for only documentary basis evaluation, no inspections to verify the actual implementation of OSHMS) | NO <i>(an improvement initiative, no criticalities to overcome)</i> |
| | 3 | Cross-Sectoral SEs | Facilitating risk assessment in SEs (often not applied) | Showing employers how to use the software for risk assessment | | Employers, Workers' associations (Confindustria CMA, A.s.n Antigiani, Coldiretti), External consultants | Realization and dissemination of the software (non- upgradable) | Lack of economic resources for new software releases (non- upgradable) | All Short-Term Goals achieved free software for companies | NO <i>(an improvement initiative, no criticalities to overcome)</i> |
| | 4 | Cross-Sectoral SEs | Organisational Models for OSH are widespread, but often not standardised | Supporting companies in adopting formalised Organisational Models for OSH | | Employers, Workers' associations, External consultants | Document and standard procedure analysis (provided by companies) | If an Organisational Model for OSH is not properly managed, it is useless | All Short-Term Goals achieved | NO <i>(an improvement initiative, no criticalities to overcome)</i> |
| | 5 | Cross-Sectoral multi-sector, different company size | Monitoring the effectiveness of measures previously imposed on SEs | Inspecting sanctioned companies by promoting OSHMS | | Employers | Inspections | Poor safety culture in a few companies | All Short-Term Goals achieved 25 inspected companies - 2 sanctioned | NO <i>(an improvement initiative, no criticalities to overcome)</i> |
| 6 | Sectoral focused sector, different company size | High injury rate | Prescribing improvement measures to companies and verifying their implementation | | Employers, Workers' associations, Trade unions, External consultants | Inspections, document and standard procedure analysis | | All Short-Term Goals achieved 30 inspected companies - 6 sanctioned - 69 prescribed improvement measures (except for no inspections to verify the actual implementation of improvement measures) | NO <i>(an improvement initiative)</i> | |

Acronyms: Occupational Safety and Health (OSHA), Occupational Safety and Health Management System (OSHMS), Oriented Prevention Plan (OPP), Small and Medium-sized Enterprise (SME), Small Enterprise (SE), Responsible for the OSH Service (RSPP), Workers' Representative for OSH (RLS), National Institute for Insurance against Accidents at Work (INAIL)

detected after inspections, ASLs require mandatory improvement actions to companies (*A2, B1, B2, B3, C6 initiatives*). The initiative results mandatory in both cases. In the first, the need comes from the outside (institutions), therefore the environment does not generate the need, which is driven from the above. The second case results from a regular inspection that detects non-conformities; hence the requested improvement action comes from the below, directly from the environment.

3. Improvement measures, agreed with the actors involved in the initiative, are run by ASLs to enhance, or just investigate, the OSH dynamics inside companies (*A3, A4, C1, C2, C3, C4, C5 initiatives*). These actions often start from initiatives taken by the ASLs that, knowing the territory in which they operate and its criticalities, decide to implement improvement activities. These initiatives are usually cross-sectoral and not targeted at specific companies. Therefore, the goals may not be generated by the environment.

The analysis of the questionnaires has detected three major categories of direct activities: informative, training, and monitoring. The major mechanisms produced by these activities are identified by relying on the terminology used in the institutional theory and the recent work of Uhrenholdt Madsen et al. (2020), as reported below.

Informative activities are applied to spread knowledge in companies through dedicated events, such as seminars and conferences. These activities have been used in the analysed initiatives for the following major reasons: introducing initiatives to the interested parties and explaining the consequent activities (e.g., training) (*A2, A3, B1, B2 initiatives*); presenting new methodologies to improve OSH management (e.g., risk assessment models) (*A2, C1, C4 initiatives*); disseminating data on already developed questionnaires (*A2, A3, A4 initiatives*). Mechanisms: *normative* and *mimetic*; *learning* and *motivation*.

Training activities usually address the major actors inside companies responsible for OSH management, such as employers and OSH professionals. These activities have been applied in the analysed initiatives for the following main reasons: training people on new methodologies to improve OSH management (e.g., risk assessment models) (*A1, A2, B1, B2, B3 initiatives*); supporting actors in the continuous management and improvement of OSH processes (*A3, A4, B1, B2, B3, C1, C2, C3, C4, C6 initiatives*). Mechanisms: *normative* and *mimetic*; *integration*, *learning*, *motivation* and *translation*.

Monitoring activities ensure companies comply with a determined set of conditions and mandatory requirements, such as national regulations. The questionnaires refer to the following activities: surveillance and inspections (*B1, B2, C5, C6 initiatives*); documentation request to evaluate the ongoing practices of OSH management (e.g., companies have to show (sanctioned otherwise) that they have correctly implemented an organisation and control model for OSH) (*B1, C2, C4, C6 initiatives*). Mechanisms: *coercive*, *normative* and *mimetic*; *translation* and *attention*.

Besides, other secondary activities have been performed in the initiatives as they were essential to the correct deployment of the direct activities mentioned before, such as preparing surveys, collecting and analysing data on risks and injuries, and establishing effective information flows and working teams.

ASLs have developed all the above activities with the primary intention to achieve the goals defined at the beginning of every initiative. However, not all the activities have shown strong and quantifiable results. Some reasons which led them to fail or to be successful are discussed below, by considering the existing connection between the context, mechanisms, and outcomes. The 13 described initiatives are significantly different in terms of scope, goals, activities, outputs, and outcomes, therefore comparing them to determine the most effective one is not viable.

The difference between outputs and outcomes is plain in the questionnaires and most of the initiatives have produced outputs instead of outcomes for several reasons.

The outputs derive from the short-term (operational) goals and closely depend on the specific implemented activities; hence it is easier to assess whether they have been met. When it comes to the outcomes, their achievement should instead be evaluated in the long run by monitoring them over time. Therefore, outcomes to be assessed should have clear and measurable indicators which are not always easy to employ in initiatives. By way of example, support initiatives to investigate and/or improve OSH management systems in companies mostly produce qualitative outcomes based on the satisfaction of the participants (*A3, C1, C3 initiatives*). However, more qualitative outcomes do not mean less effective initiatives. If an initiative is harder to be quantitatively evaluated, it does not imply that it cannot produce beneficial effects. This once again strengthens the idea that initiatives cannot be assessed in absolute terms and the best (most successful) initiative ever does not exist.

There are support initiatives (*A1, A3, C1, C2, C3, C4, C6*) that do not set long-term goals, so in the end, any outcome can be assessed since there are no long-term goals to be achieved. One key priority to get meaningful outcomes lies in defining accurate goals before the start of every initiative. Assessing outcomes is easier for sectoral or company-specific initiatives in which quantifiable and more accurate indicators are highlighted (*A2, B1, B2, B3 initiatives*), for instance, by measuring the reduction of injury rate at the end of the initiative. However, ASL's initiatives do not periodically monitor the outcomes which, instead, have been evaluated only once when the initiative ended. Monitoring outcomes over time requires human and financial resources from both companies and initiative developers (ASLs, in this case). These factors in the questionnaires have been identified by ASLs as the major barriers that hindered the correct assessment of the outcomes of the initiatives (*A1, C1, C3*).

The analysis of these initiatives has revealed that the majority of ASLs consider outcomes important, however, their effectiveness is still difficult to monitor and little

proof of their long-term beneficial effects have been shown. Similarly in the literature, Micheli et al. (2021) and Li et al. (2020) pointed out little evidence of the effectiveness of OSH training initiatives, despite its primary relevance. Further evidence of the importance of monitoring outcomes is underlined by the *C5 initiative* that has been exclusively developed to monitor the results of previous initiatives not properly evaluated.

Several actors usually get involved, each of them with a specific role, when initiatives are developed. In some of the analysed initiatives (e.g., *B1*), meetings dedicated to involving actors were set up to plan more effective information and training activities. Engaging actors such as representatives of trade unions and employers' associations, who can share their deep knowledge on the field, enables to design activities that are well-grounded in the context where initiatives are implemented. In particular, *B1*, *B2* and *B3 initiatives* set two major goals to improve the network of actors: empowering the information flow between the key OSH actors internal and external to companies and establishing a lasting working group contributing to the improvement of OSH management inside companies. At the end of these initiatives, a network with the interested parties (institutions, companies, intermediaries such as employers' associations) has been established to increase the safety culture inside companies and reduce and prevent risks over time.

ASL (B) compared to the other two (A and C) had more concern about the actors' network and the added value of their participation. One major reason for that difference between ASLs can be related to the context in which those initiatives were implemented. The companies addressed by ASL (B) were larger and the initiatives included just one or few companies at a time. Therefore, the implemented activities and the actors involved were much more specific than in cross-sectoral initiatives. This allowed creating an integrated and lasting working group for OSH improvement, which would be much harder to develop when different sectoral associations and actors are put together. Nonetheless, it seems to be worth doing an additional effort to establish networks of actors for every type of initiative. As it was explained in *Section 1*, intermediary organisations can support companies, especially SMEs, in implementing OSH initiatives. However, none of the analysed initiatives stated the relations between actors, thus not identifying *who does what*. The questionnaires just mention the key actors (Table 1) without clarifying their specific role and added value.

Three out of the thirteen initiatives (A2, B1 and B2) are Oriented Prevention Plans (OPPs) promoted and implemented by ASLs in collaboration with the Department of Medicine, Epidemiology, Occupational & Environmental Hygiene of the Italian National Institute for Insurance against Accidents at Work (INAIL, 2021). OPPs are territorial intervention models identified in the Italian National Prevention Plan (Ministero della salute, 2020) as a tool to support companies in organising prevention activities and increasing their OSH performance, by sharing specific knowledge on critical

risk factors. ASLs, therefore, have developed support initiatives to promote continuous improvement plans for managing risk factors at the company level. These initiatives have on average revealed stronger results (clearer goals and quantifiable outcomes) compared to the others, hence showing evidence that OPPs are a valuable tool to define more effective prevention plans.

5. Conclusions and future developments

The analysis of some recent support OSH initiatives, developed by the ASLs in Italy, has emphasized the added value of their implementation inside the companies and some likely areas for further improvement as well. The 13 initiatives are diversified and touch upon different key aspects for OSH improvement. A satisfactory picture of the Italian support initiatives is therefore represented.

The real effectiveness of initiatives depends on all the processes and mechanisms occurring in their development, therefore managing as many variables as possible will ensure better results (higher effectiveness). In particular, as shown in *Section 4*, the environment can affect the activities implemented in the field, and, above all, the short- and long-term goals which would consider specific needs driven by the context. The programme theory has been chosen to this end, to better understand the chain of events in the initiatives by bringing together the context, mechanisms, and outcomes.

The questionnaire replies have revealed that initiatives are usually carefully designed with clear goals and effective practical activities. Whereas, when it comes to the outcomes (long-term results) there is little or no evidence of them, as often stressed by the literature (*Section 1*). Despite outcomes can be often detected in the answers to the questionnaires, they are rarely quantifiable and no indicators to monitor their effectiveness are established. Hence, it comes the need to enhance the long-term assessment of initiatives' effectiveness by, for instance, proposing recursive follow-up activities that could turn the initiative into a never-ending improving process.

The Authors believe that to evaluate the OSH initiatives over time the programme theory by nature is not completely appropriate to explain longitudinal phenomena in changing environments, thus evolutionary theories might be combined to enable dynamic monitoring of the OSH initiatives.

A further limitation encountered in the evaluation of initiatives refers to the availability of information on the implementation cost that was not available or not detailed enough for all the analysed initiatives, therefore, an assessment and a comparison of cost items could not be performed. However, proper cost accounting can support both the design and evaluation of initiatives, hence future investigations might go in this direction.

Finally, considering the promising results of this survey, the Authors intend to broaden the analysis by involving other ASLs to strengthen what has been already found and to grasp new insights.

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