PROCESS SAFETY LEADERSHIP AND CULTURE FOR SUSTAINABLE PERFORMANCE

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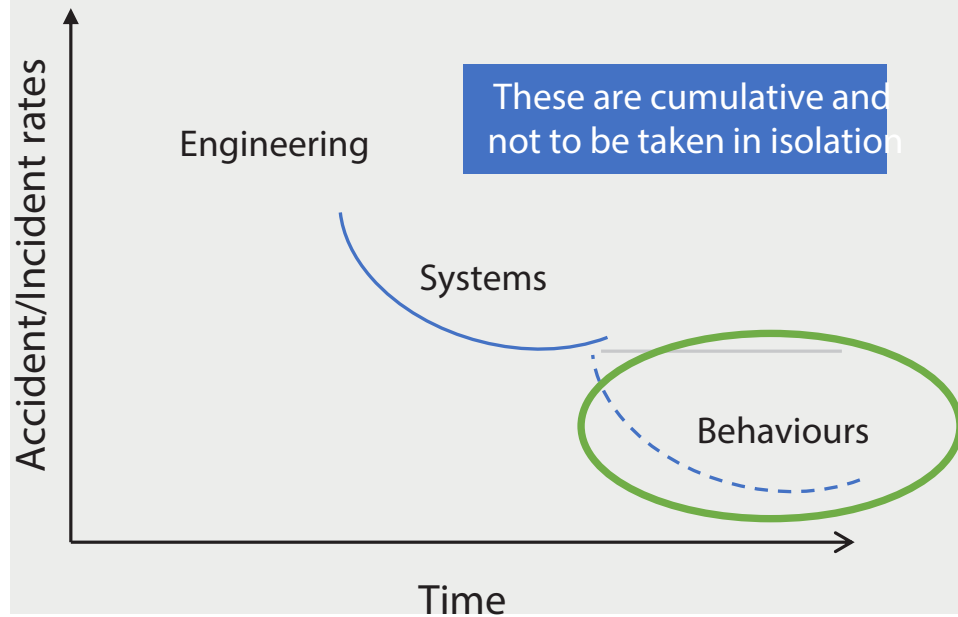
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Introduction

Complex industrial organizations must be compliant – both in technological in organization choices – with industry standards and regulations, the key element is therefore the ability to monitor the **impact of human factor** in risk management and to develop a positive safety culture

- Recently, a **plateauing in safety performance** was observed among many organizations in different kind of industries and workplaces: many of the occurred safety related events were due to behavioral causes or inadequate risk perception

- In the past and even recently, government agencies and international organizations have followed a **"command and control"** approach towards safety management (made of several laws and controls) mainly developed as a reaction to particularly significant accident events

- This philosophy often involve **high costs and bureaucracy**, sometimes leading to less attention to relevant interventions related to the incidence of the human factor

- **Strategy and Culture** are two fundamental and strongly interconnected levers for the guidance and success of an organization; their integration has become the main lever to develop a more effective Safety Management System and create business value

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Why focusing on Safety Culture?

The development of a Process Safety Leadership and Culture Model aims to understand the root behavioral causes of safety related events helping Companies tackle Safety Culture issues and improve their Safety Management System, as well as create business value

Behaviours as a cause of undesired events

These are cumulative and not to be taken in isolation

(Chart: Accident/Incident rates vs Time, showing curve labeled Engineering, Systems, Behaviours)

Why focusing on Safety Culture?

- To understand the causes of events leading to the diffusion of not appropriate behaviors

- To evaluate the Safety Leadership, which has a paramount importance in reaching successful safety performances

- To promote adequate risk perception, safe behaviors adoption, employees involvement in safety promotion and safety improvement actions identification

- To trigger a virtuous cycle leading to safety trends improvement

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What is safety culture?

Weaknesses in 'safety culture' have long been recognized as a key cause of major problems and catastrophes

Safety culture errors

Clapham Junction
"But it was not merely the errors and omissions of those who were engaged in the work on the day in question which caused the accident. The errors go much wider and higher in the organization than merely to remain at the hands of those who were working that day."
– Ref: Hidden Report on Clapham Junction Accident 1989

Piper Alpha
"It is essential to create a corporate culture in which safety is understood to be and accepted as the number one priority."
– Lord Cullen - Piper Alpha Disaster

Nimrod XV230
"Business became the prevailing culture rather than safety"
"Organizational causes played a major part in the loss of XV230."
– Charles Haddon-Cave QC – The Nimrod Review

Texas City Refinery
"Refinery has not adequately established process safety as a core value"
"The combination of cost-cutting, production pressures, and failure to invest caused a progressive deterioration of safety at the refinery."
– Ref: Independent safety review panel

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The effects of safety culture

Safety culture is a key to obtain good safety, business and reputational performances and to improve the employees' well-being

Good safety culture	Poor safety culture
Company image/Reputation Customers, shareholders, regulators and general public more likely to feel that the company is well-managed and valuable	**Company image/Reputation** Loss of confidence by customers, shareholders, regulators and general public
Performance Increased productivity due to fewer stoppages Increase in the safety performance (less accidents, incidents)	**Performance** Lost production due to incidents and accidents Decrease in the safety performance
Employee morale Staff feel proud to be part of a team together with management	**Employee morale** Staff have no pride in their company – "us against them"
Work environment Enhancement of communications and trust	**Work environment** Decline of communications and trust
Employee loyalty Greater motivation and engagement	**Employee loyalty** Loss of motivation and engagement

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Reference Models

Arthur D. Little "Safety Leadership and Culture assessment and improving" approach is based on well-established Models allowing to analyze the implicit rules and attitudes that influence personal and groups behaviors, thus affecting safety performances

"Onion skin" behaviors Model

"Unwritten Rules Of the Game" (UROG)

External environment

Organisation

Workplace

Individual

VALUES

ATTITUDES

Written Rules

Unwritten Rules

Reference Models

The Behavior "onion skin" Model is applied to understand which values, attitudes and perceptions are transmitted to the individuals

Values	Attitudes	Perceptions

- **Commitment:** is safety the first consideration in all the activities carried out?

- **Leadership:** is Safety a shared principle starting from Management?

- **Openness:** is there an environment of openness and sharing? Are the safety-related information and conclusions of incidents and near-misses investigations shared among all stakeholders?

- **Reporting:** are accidental events always reported? Are improvement actions taken?

- **Responsibility:** does everyone feel responsible for workplace safety? Do you learn from mistakes? Is negligence tolerated?

- **Measuring:** is the Safety level adequately monitored? Are the monitoring results shared?

Reference Models

The UROG Model can be used to describe the implicit rules affecting individual or group behavior and therefore the overall Site performance

Written Rules

Unwritten Rules

Every official policy within the Company

- Vision and mission
- Organizational structure
- Strategy and objectives
- Procedures
- Processes
- Rewarding policy

Factors / behaviors in everyday practices / habits

- Internal relationship dynamics that influence business Values
- Group practices, consolidated and implicit habits characterizing sub-groups and "classes" within the Corporate (e.g. different Company levels, shift workers, etc.)
- Objectives, personal interests and fears

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Project structure

The Safety Culture Survey can be directed to a quite huge amount of employees of different Company Sites obtaining good results in terms of % of completed questionnaires, thanks to a continuous collaboration with sites representatives
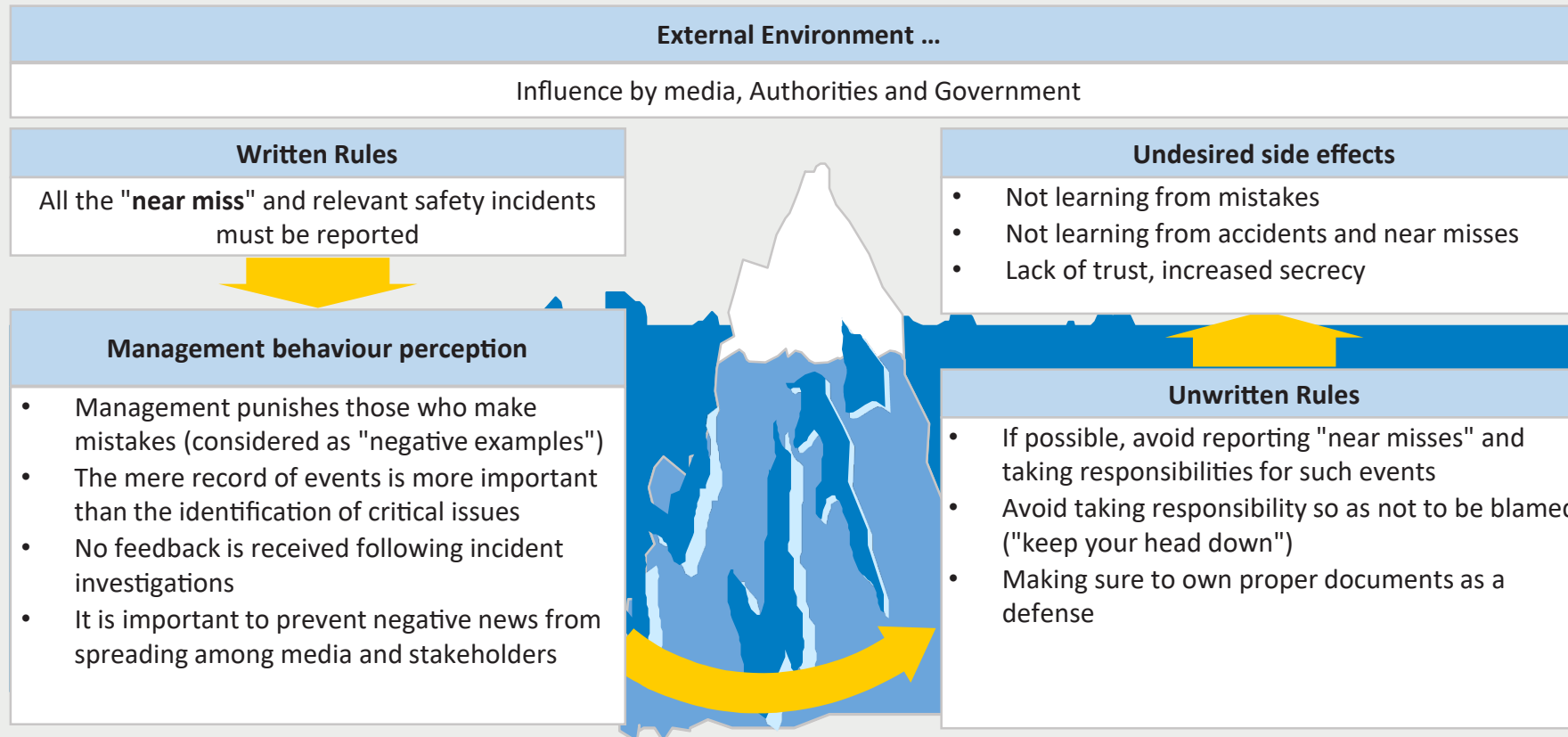
Site	Questionnaires distributed (#)	Questionnaires completed (#)	Questionnaires completed[(I)] (%)	Questionnaires valid (#)	Questionnaires valid [(II)] (#)
Site 1	926	876	95%	868	99%
Site 2	564	513	91%	510	99%
Site 3	705	671	95%	658	98%
Site 4	299	271	91%	258	95%
Site 5	256	256	100%	254	99%
Site 6	59	59	100%	55	93%
Site 7	463	456	98%	442	97%
Site 8	400	360	90%	356	99%
Total	**3.672**	**3.462**	**94%**	**3.401**	**98%**

Note: (I) The percentage refers to the total number of questionnaires distributed in each site;
(II) The percentage refers to the total number of questionnaires completed in each site

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Reference Models

The aim of the Assessment is to investigate the effect of external factors and perceptions of Management behavior in creating unwritten rules which may affect the effective SMS effectiveness and lead to undesired side effects, rooted in corporate culture

External Environment ...

Influence by media, Authorities and Government

Written Rules

All the "**near miss**" and relevant safety incidents must be reported

Undesired side effects

- Not learning from mistakes
- Not learning from accidents and near misses
- Lack of trust, increased secrecy

Management behaviour perception

- Management punishes those who make mistakes (considered as "negative examples")
- The mere record of events is more important than the identification of critical issues
- No feedback is received following incident investigations
- It is important to prevent negative news from spreading among media and stakeholders

Unwritten Rules

- If possible, avoid reporting "near misses" and taking responsibilities for such events
- Avoid taking responsibility so as not to be blamed ("keep your head down")
- Making sure to own proper documents as a defense

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Project structure

Our typical Project development approach for Process Safety Leadership and Culture assessment of Organizations is based on five-step

Safety Culture Survey	Survey Analysis	Focus Group		Analysis and Reporting
		Targeted Interviews		
ACTIVITIES • The safety culture survey provides broad coverage of the organisation and is a good way to identify the main issues facing the company • The Survey is anonymous and involves all the Site employees	• Survey results are analyzed and explained using segmentation based on significant criteria for individual's value, attitudes, perceptions and related behaviors understanding	• Focus groups further explore the underlying cultural drivers • They are also useful for discussing interesting/ unexpected survey results and for testing initial hypotheses	• Interviews deepen the analysis by exploring the values, attitudes and perceptions that are the underlying causes of the issues identified by the survey	• Presentation of analysis results • The Report contains proposed solutions and actions to be implemented in order to improve Site Safety Culture
OUTPUT • Culture survey pack with graphs comparing responses across organisation	• Preliminary report • Report presentation and discussion	• Interview log with findings recorded and categorized by issue • Unattributed quotes recorded and categorized by issue		• Report • Executive presentation

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Project structure

The safety culture survey provides a broad coverage of the organization and is a good way to identify the main issues facing the company

Safety Culture Survey

The questionnaire:

- is anonymous
- measures individual attitudes towards different Safety Culture issues
- is tailored to the specific needs of the assessed Organization, starting from a broad questions database

Excel Database of Responses

Arthur D. Little has developed a structured Excel Database in order to quickly obtain different analysis of the answers, monitoring the proportion of responses from different:

- levels
- roles and responsibilities
- seniority in the Site

Results (illustrative)

The Survey uses a Likert scale with statements which correspond to onion-skin model (i.e. Strongly Agree, Agree, Neither Agree nor Disagree, Disagree, Strongly Disagree)

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Project structure

As an example, the Survey analysis can contain the average evaluation given to Safety Culture issues by employees belonging to different roles …
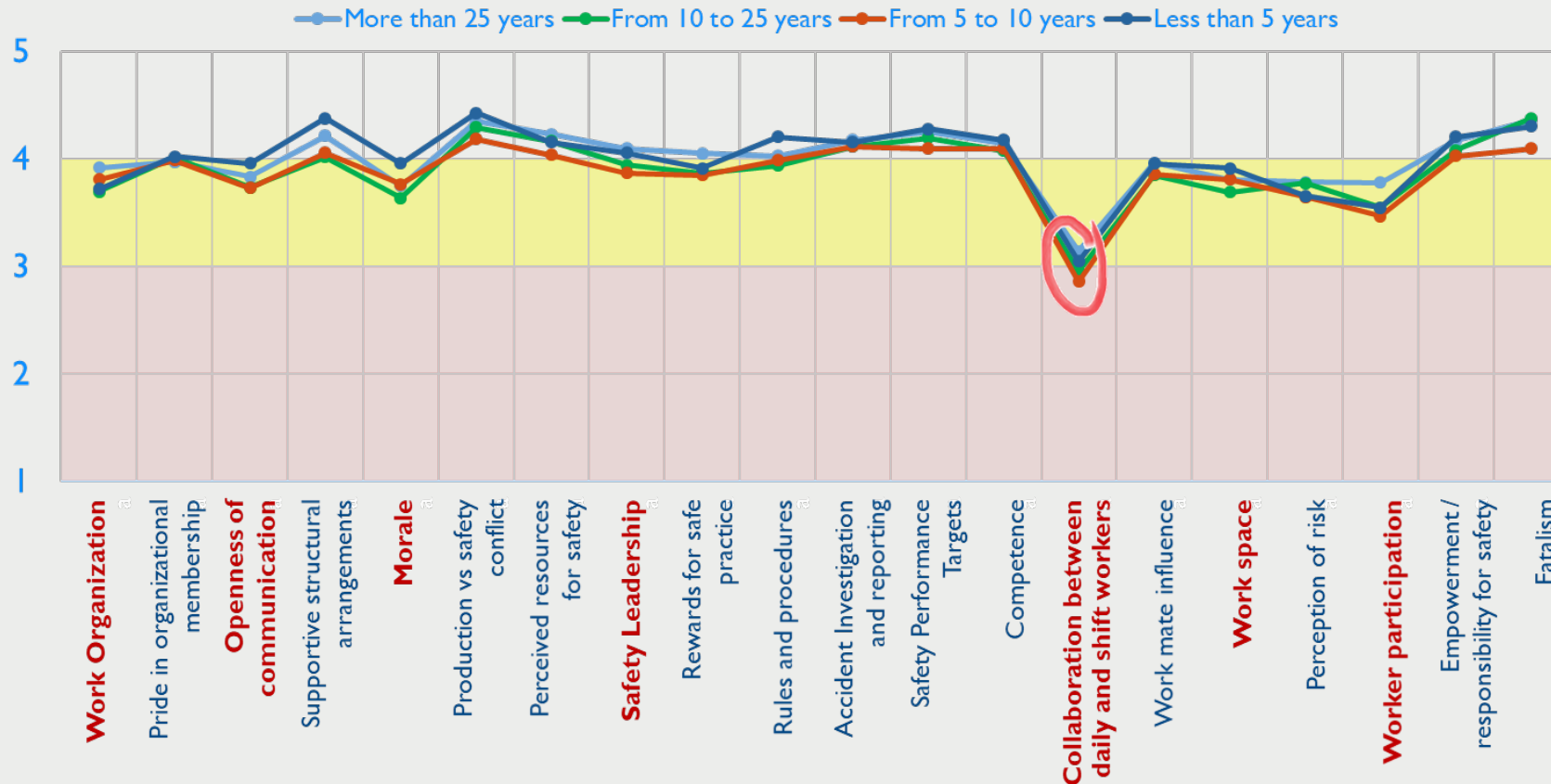

Note: The scoring varies from a minimum of one (perception of a not adequate performance / attitude for the considered topic) to a maximum of five (perception of good performance / attitude). A score equal to three usually has a negative meaning in terms of safety culture related performances / perceptions / attitudes

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Project structure

Focus groups and interviews further explore underlying cultural drivers and are also useful for discussing interesting / unexpected survey results

Discuss Survey results

After the Survey the Focus Groups will be interviewed in order to:

- discuss Survey results
- prioritize issues
- develop solutions for problems identified

Analyze the relevant issues

- Focus groups further explore the underlying cultural drivers
- They are also useful for discussing interesting / unexpected survey results and for testing initial hypotheses

Suggest possible improvement actions

During Focus Groups and Interviews, the main issues are discussed in order to identify:

- possible solutions and approaches to be implemented
- barriers preventing the management system working
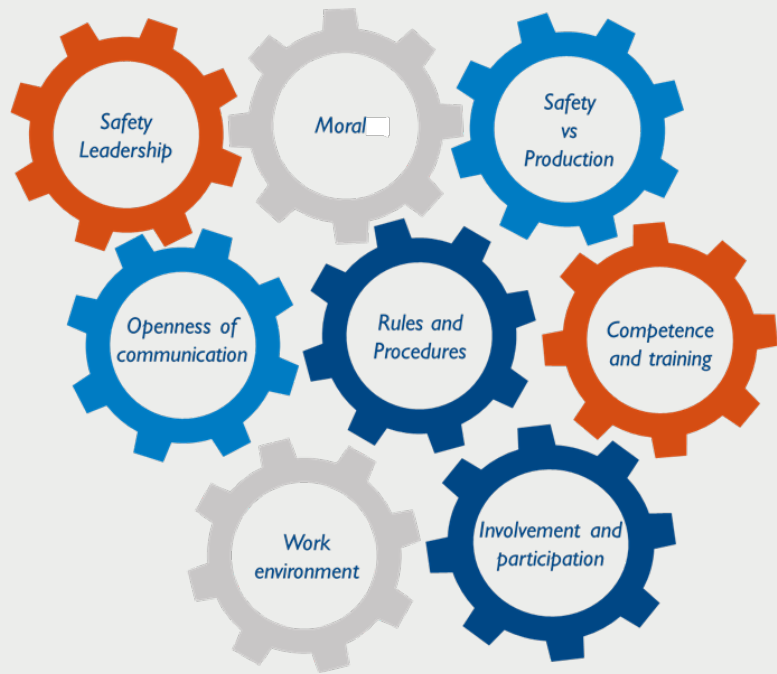- key success factors for the proposed solutions and actions
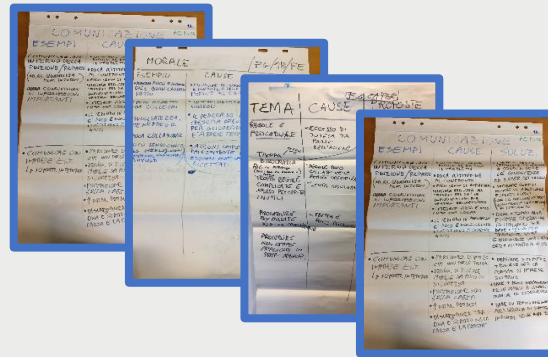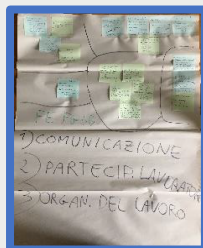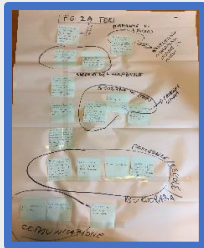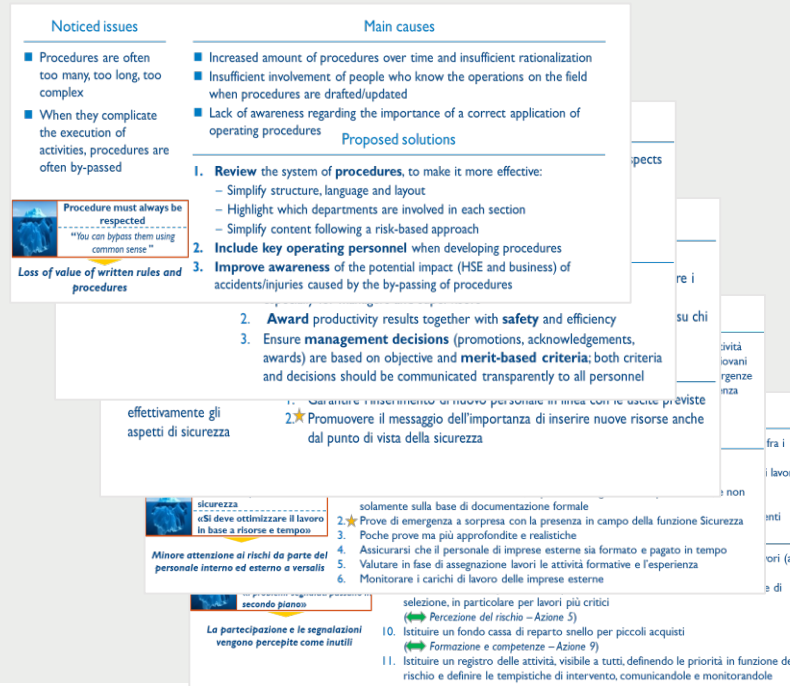
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The Report identifies the main areas of intervention, where it is necessary to act in order to effectively tackle the Safety Culture related issues and develop and further encourage to propose possible solutions, which will be part of the overall Action Plan for Safety Culture promotion in the Site

Safety Culture Improvement Program

Action Plan