

Safety In Europe: Past - Present - Future

...organizations are motivated by many factors, and if there is any area in an organization that will very readily get the attention of all levels of management, it is costs and the "bottom line."

Willem N. Top

This article is not based on research but on over 20 years experience of the author in the European safety and risk management field. More precisely in The Netherlands and North Western Europe. This experience spans a period during which safety has seen the development from a (heavily state) subsidized low-level type of activity to its present day status where safety is increasingly becoming an issue in the board room and a strategic management item.

This period of experience also includes an article written in 1976 by the author for the National Safety Management Society's *Journal of Safety Management*. In that article, nearly twenty years ago, the author pointed at the need for industry to better manage its own affairs instead of sitting back and waiting for government to come in with more stringent legislation.

Time has indicated that we have seen something of both: further regulation by the authorities in such areas as safety and control over environmental matters as well as efforts from industry to upgrade its image in these areas. Time will also prove that these developments will continue into the future with a growing emphasis on legislation requesting industry to properly man-

age its own affairs. These developments are international and this is also why modern (European) legislation is "framework" legislation directed at management or "care" systems rather than detailing technical matters. Legislation putting the responsibilities where they belong: with industrial management.

Safety — Broad View

Safety developments in Europe are directed to include the broad scope of safety rather than the limited view looking at injuries only. Safety in modern legislation is directly associated with health and well-being of employees. Terminology used relates to "Care Systems" and "Quality of work." Clear overlaps exist into the area of Environmental Care and increasing evidence exists that Safety, Health and well-being are being given their proper place in Total Quality Management approaches and considerations.

While this broad view is evidently present in some countries such as in The Netherlands, UK, and Scandinavia, it is less evident in some of the other countries. Looking at the legislative and industrial developments (see below), however, it is fair to assume that this broad view on safety will become more widespread and accepted in time.

Actual Experience

Several accidents have contributed to the further pressure on industry as well as assisted in obtain-

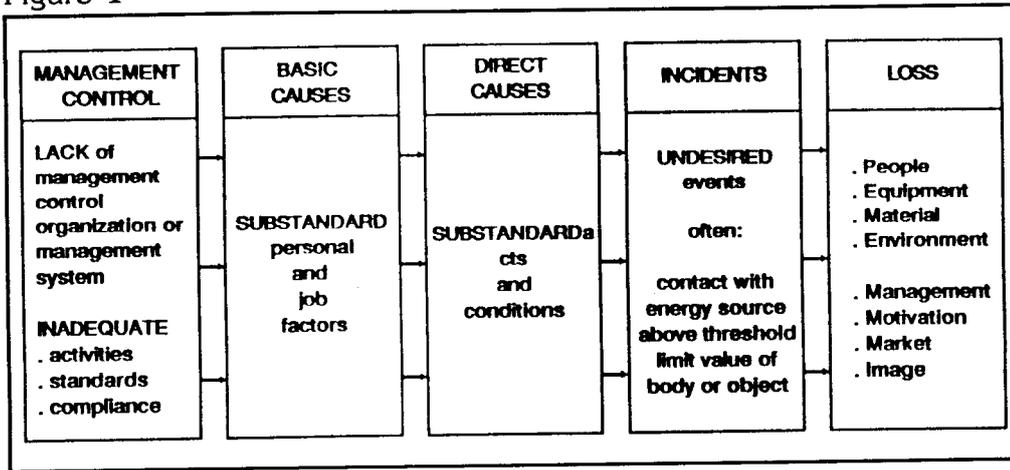
ing further insight into accident causation. Such more recent accidents in Europe includes events known as Seveso in Italy, the King Cross Underground accident in London, The Herald of Free Enterprise off the coast of Belgium, the Scandinavian Star between UK and Scandinavia, and the Piper Alpha platform catastrophe on the UK side of the North Sea.

These and other, less well-known, accidents have generated further investigation into the causation of accidents and have supported the well-known accident causation model which was developed by Frank E. Bird, Jr., and which is pictured in Figure 1 [see next page]. This model has proved itself as an effective communication tool to drive home the underlying causes as related directly to the "safety management system" of an organization.

In particular, this management system orientation follows the Cullen report of the Piper Alpha incident. At present a major emphasis is placed by the Dutch State Supervision of Mines (the authority supervising the mining operations in The Netherlands, including offshore oil and gas production installations) having requested descriptions of the safety management systems of the offshore operators. Similar developments are on the way in other European countries having oil and gas exploration and production activities and "Safety Cases" are being required for existing as well as new installations.

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Figure 1



These safety cases include all stages of installation development from initial design and construction to operation and disposal. While these developments affect the offshore industry in particular, they also influence the landbased (process) industry. We have seen increasing cooperation between the governmental agencies supervising the offshore and landbased industry and can only expect that this will continue into the future. We can therefore only expect continuing emphasis from (international) authorities on safety management systems and must expect that qualitative requirements will be in place before the end of the century.

Such emphasis on management systems is also stimulated from the environmental area where legislation in several countries is requesting industry to set up environmental "care" systems. Also, following several incidents involving contractor personnel, increased emphasis is being placed by process plant operators on the safety management system of their contractor firms, as part of the contractor selection process. Coordinated efforts are particularly present in The Netherlands through the work of the "National Working Committee on Contractor Safety." It is expected that an "industry standard" will be available in the near future, streamlining and standardizing the safety evaluation of contractor firms.

Increasing insight into accident causation will prove to affect courtroom decision-making and indica-

tions in that direction are already there following some of the more recent accident investigations. Industrial management will have to consider that, in the not too distant future, they may be called upon to defend the quality and effectiveness of their safety management systems.

Legislation—The European Directive on Safety and Health

Following the formation of the European Community and the disappearing internal borders, European legislation is being directed at setting equal minimum standards throughout the Member States concerning economical and social issues. Effective January 1, 1993, the "Council Directive on the introduction of measures to encourage improvements in the safety and health of workers at work" became part of all national legislation in the Member countries. The extent to which this legislation will influence safety and health in industry depends on several items:

- present level of national legislation. The Council Directive must be seen as a minimum and does not "justify any reduction in levels of protection already achieved by Member States."
- the way national authorities will enforce legislation and in particular the extent of their knowledge and understanding of management system elements to control undesired loss.
- the attitude of the industry itself, either pro-active, before the

fact and working to improve industry's image or re-active waiting for additional actions to come in from government.

Some of the points of the European Directive include:

The employer shall:

- develop a coherent overall prevention policy, covering technology, organization of work, working conditions, social relationships, factors influencing working environment.
- ensure consultation with workers and/or their

representatives on the planning and introduction of new technologies.

- designate one or more workers to carry out activities related to protection and prevention of occupational risks.

- possess an assessment of the risks to safety and health and must decide on the protective measures to be taken.

- ensure that each worker receives adequate safety and health training, on recruitment, in the event of transfer or change of job, when introducing new work equipment or a change in equipment, when introducing new technology. This training shall be repeated periodically if necessary.

- ensure that workers from outside firms engaged in his undertaking have received appropriate instructions regarding health and safety risks during activities in his undertaking.

The result of this European legislation will depend on the items indicated above and will very much depend on the attitude of industrial management. A pro-active approach will require identification of control activities as part of a safety management system and setting acceptable criteria for such activities. Such a safety management system will most likely have to be built over time through various actionplans and include clear and detailed descriptions (laid down in a Safety Management System handbook) of how to properly carry out

the right activities to control accidents. A description of such a Safety Management System is vital to indicate to third parties (including authorities—and clients, if the company is a contractor firm) what is being done to control accidents. Not less vital is to indicate which recognized safety audit system is being used to verify the effective operation of the safety management system. Such safety auditing is becoming a mandatory item in the offshore industry and is further indicated in the revision of the Post-Seveso Directive. What has been lacking so far is the understanding of what is an effective safety audit system but experience in this area is being gained almost daily.

Industry's Response—CEFIC Guidelines on Occupational Health Management

CEFIC is the European Chemical Industry Council. It is representing the National Chemical Federations and Chemical Companies of Europe. CEFIC represents an industry which employs over two million people and accounts for approximately 30% of world chemical production.

Following are some quotes from the CEFIC Guidelines on Occupational Health Management:

- there is a growing emphasis worldwide on the responsibility and accountability of management for safeguarding the health, safety, and welfare of employees as well as the community at large.

- for its effective management, occupational health must be proactive and must be an integral part of a company's activities, and this must be spelt out in a Health, Safety and Environmental Policy (HSE) Statement.

- implementation of occupational health aspects of an HSE Policy can be facilitated by ensuring the existence of an adequate occupational health programme, the adoption of appropriate standards, the allocation of necessary resources and the measurement of performance against agreed objec-

tives.

- (occupational health) responsibility is a clear line management responsibility.

- managers must understand the broad role and scope of the occupational health function and ensure that they are resourced and organized to perform effectively.

- management must assure that health and safety risks are assessed and preventive measures introduced to attain control.

- the occupational health function has an advisory and supporting role. It will be instrumental in preparing an occupational health programme and presenting it to management for implementation.

- periodic auditing is an essential tool in the armor of any occupational health program. It is ideally conducted as a team effort with related HSE functions. Such audits may include:

- Technical audits – to conduct an objective review of the exposures, operating procedures and general precautionary and control measures.

- Management system audits – examination of the organization and systems used to manage HSE programmes.

- Functional performance audits – to conduct a detailed review of occupational health programmes against pre-determined performance criteria.

These CEFIC guidelines are very much in line with the "Responsible Care" initiatives taken by the international process industry, in Canada, USA and in Europe.

Safety Efforts—Management System Driven

The development is clear: increasing emphasis on safety management systems using the broad view to include safety, health and well-being. Increasing insight is obtained into what elements constitute a safety management system and how these are being assessed and audited. In Europe experience is gained with several safety auditing

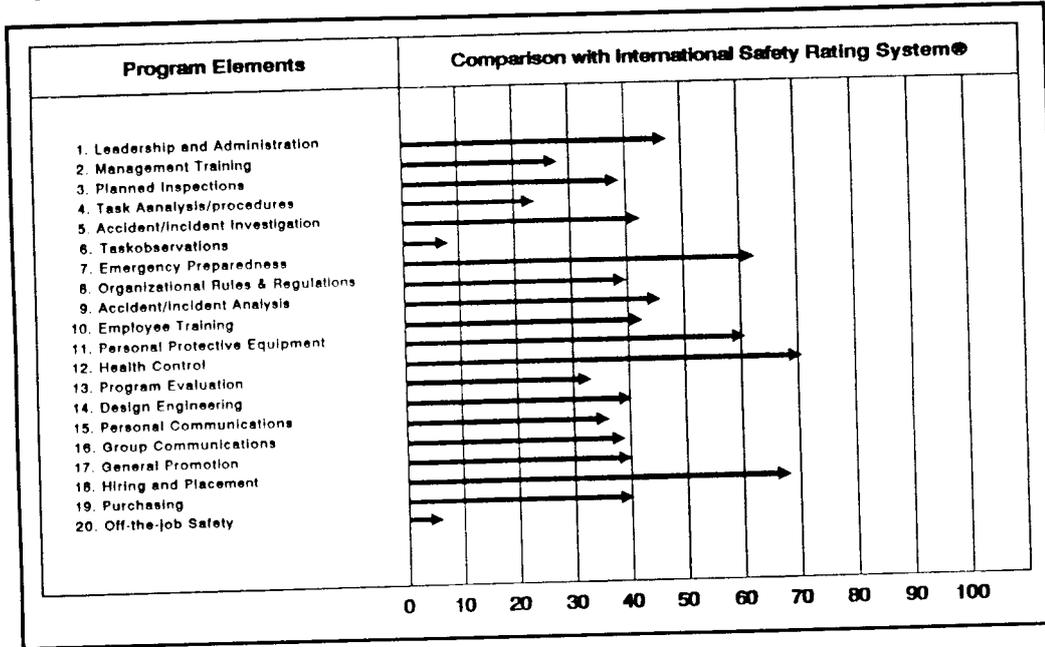
tools which are available on a commercial basis and therefore (one more than the other, however) maybe subject to study and to sharing experiences. Audit systems include products such as: Chase (Hastam – UK), Sharp (UK), BSC (UK), Manager (Technica – now DNV), and the International Safety Rating System or ISRS (DNV, UK, Scandinavia, The Netherlands, Belgium, France, Germany, USA, and international). Structured comparison evaluations of these audit systems are only starting and some work in this area is being done by the Delft University in The Netherlands.

The "International Safety Rating System" is a product which originated in the USA and was developed by Frank E. Bird, Jr., of ILCI. It is not only the safety audit system on the market with the most experience, it is also the most wide spread internationally. It includes 20 elements as pictured in Figure 2. These 20 elements are divided into about 120 to 130 so-called "sub-elements" and further into about 600 criteria in the form of questions. The ISRS (as do some of the other audit systems) allows quantified evaluation in each of the elements and sub-elements by adhering value factors to each question. This allows presenting audit results as indicated in Figure 3 [see next page] which forms a strong com-

Figure 2

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|------------------------------------|
| 1. Leadership and Administration |
| 2. Management Training |
| 3. Planned Inspections |
| 4. Task Analysis and Procedures |
| 5. Accident/Incident Investigation |
| 6. Task Observation |
| 7. Emergency Preparation |
| 8. Rules and Regulations |
| 9. Accident/Incident Analysis |
| 10. Employee Training |
| 11. Personal Protective Equipment |
| 12. Health Control |
| 13. Program Evaluation |
| 14. Engineering Controls |
| 15. Personal Communications |
| 16. Group Communications |
| 17. General Promotion |
| 18. Hiring and Placement |
| 19. Purchasing Controls |
| 20. Off-the-job Safety |

Figure 3



munication tool indicating safety management system performance. These results can be used to prepare the next actionplan and the audit system itself serves as a reference to set up such a plan.

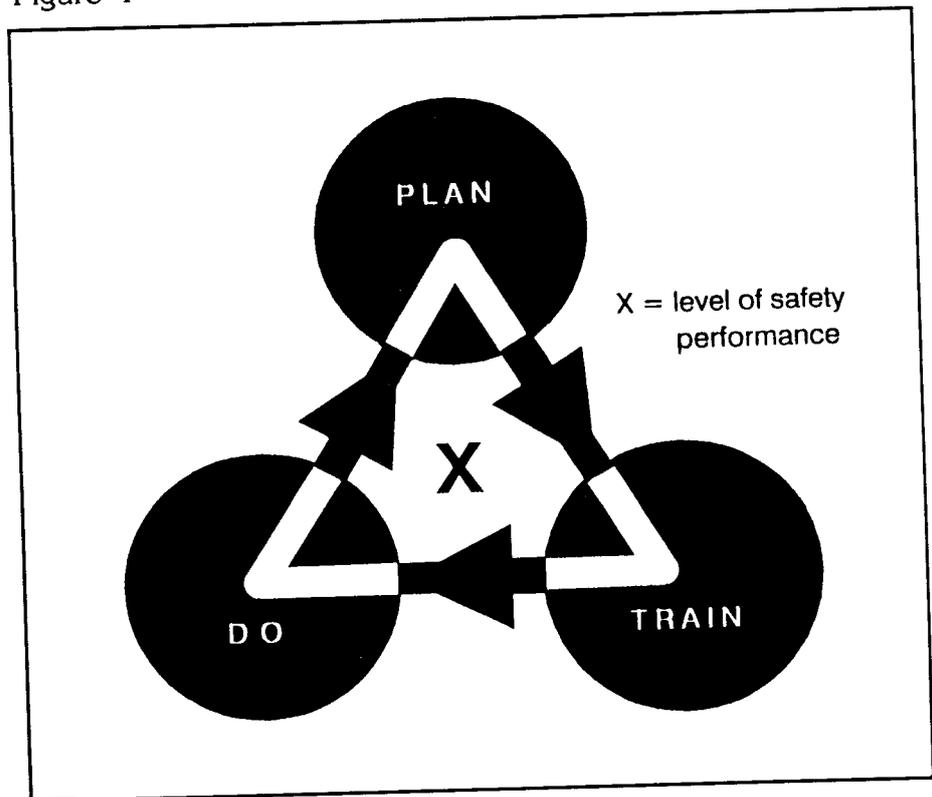
Safety Management—Turning Concept Into Process

If used the right way any good auditing system would generate results. The ISRS, however, has the advantage of having a long history base in which many of the initial "bugs" have been eliminated. Other advantages include international acceptance and use by some of the major international corporations (U.S. as well as European) as well as the availability of related products in the training and consulting. These latter advantages make it easier to use the ISRS in a "safety process" as described below. Another advantage to the international industry is the fact that the ISRS is now part of the Det norske Veritas (DNV) organization which is well represented internationally, in Europe and the USA. It provides the proper environment for an already well-accepted system to become truly global.

Obtain a high level of safety requires more than just setting up a management system. It requires

more than carrying out audits. It requires to properly carry out the proper risk control activities – "doing the right things the right way." It involves an improvement process of which the basic elements are pictured in Figure 4. In this picture the level of safety per-

Figure 4



formance is supposed to rest on three columns: Plan-Train-Do. These columns are based on a foundation of Management Leadership, they should be developed simultaneously to obtain a steady improvement process.

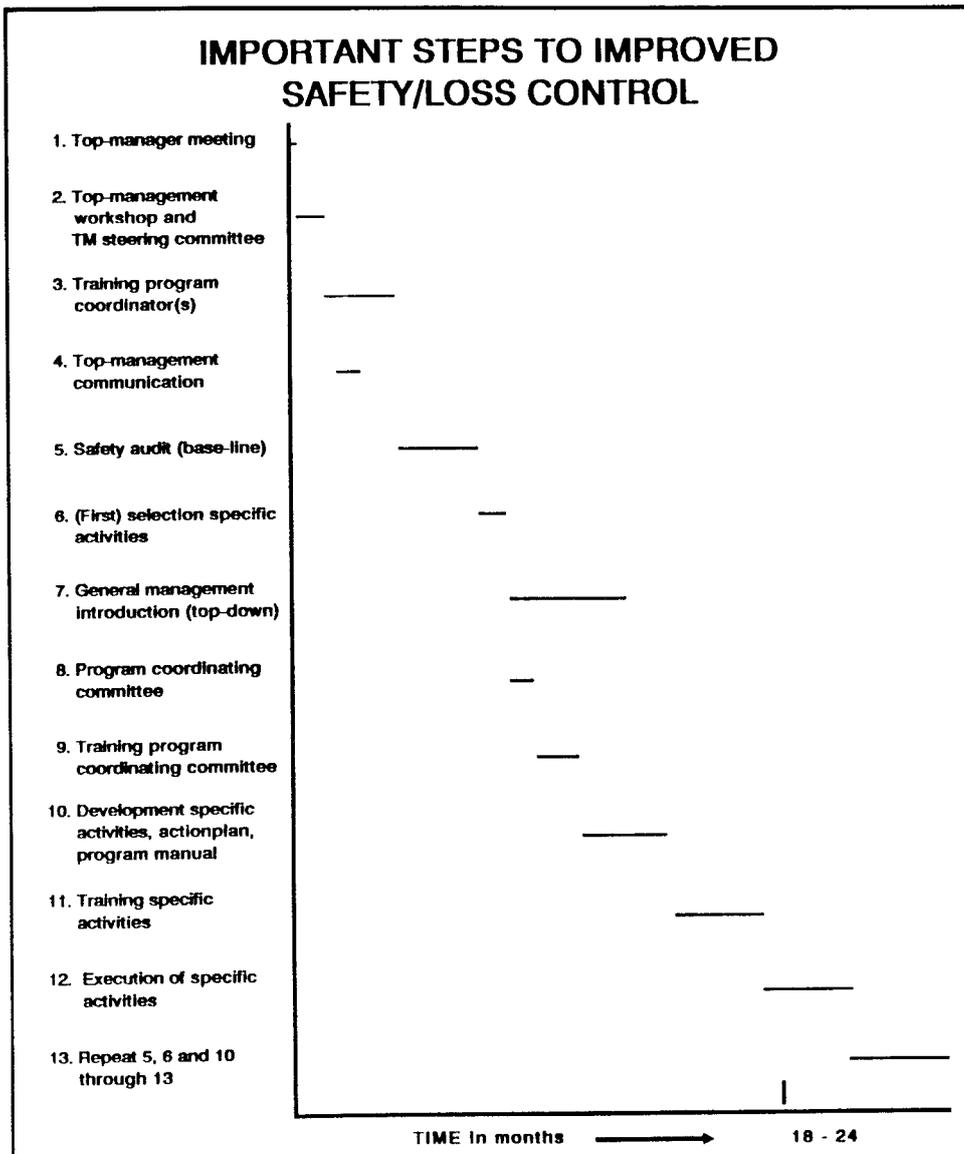
The safety process being made possible with the help of the International Safety Rating System includes the following steps which are illustrated in Figure 5 [see next page]:

1. Meeting with the top-manager of the organization to indicate the need for his/her personal leadership and commitment to the safety process.

2. Top-management workshop to indicate the need for necessary leadership, commitment and support of the management group reporting to the top-manager.

Formation of a top-management steering committee to administer the program, provide general guidelines for de-

Figure 5



velopment and provide the necessary (pro-active) leadership and support for success.

3. Training of coordinator(s) in the use of the ISRS and related safety management concepts to provide for the proper in-house expertise for audit preparation and to guide the desired improvement process.

4. Communication from top-management throughout the organization concerning process steps to be taken and to further indicate top-management commitment to the process.

5. Carrying out a base-line audit, using an accepted refer-

ence such as the International Safety Rating System.

The audit may be preceded by an "opinion survey" which would support the audit process while at the same time collect information about (safety) attitudes at several levels in the organization. This survey may also provide insight into the resistance to change which may be expected later on in the process.

6. Selection of specific activities for further consideration in the first actionplan. This selection will make it possible to answer the questions "What's next? What will we do after

this?" which will undoubtedly be raised during the general safety management introduction training.

The selection of activities should be such that the best possible results can be obtained in the shortest time period. Preference should be given to those activities which will enable bottom-up participation and which will have the most visible influence at the sharp end of the organization, to demonstrate that "management means what they say." Besides activities as emergency preparedness, engineering and purchasing controls, these would include:

- planned inspections
- accident/incident analysis
- groupmeetings
- identification of "critical" tasks, analysis, etc.

7. Provision of general safety management introduction training. This introduction should be given top-down to include all levels of management and staff and should, as necessary, be adapted to the relevant management levels regarding time involvement, contents, method of presentation, etc. Purpose of this general introduction is to make the safety philosophy and concepts known, to communicate the desired goals, and the way along which

these mutual goals will be obtained. In principle this training should provide the necessary consensus in the organization concerning ideas, goals, terminology, etc. In other words: "all noses in the same direction," necessary to progress towards the common goal.

8. Formation of a program or working committee to translate top-management directives into more detailed criteria and actionplans.

9. Training of working committee members ("element manager") to fulfill the important role of the committee in the setting up of specific program activ-

ities and in the coordination of the implementation of these activities.

10. Further development of selected activities into more detailed criteria by the working committee. In this process the people involved in the execution of the work to be done, should be allowed to provide input, to provide for "emotional ownership" and to minimize resistance to change. The criteria should include a description of bottom-up involvement.

These criteria should form part of the actionplan and the "safety management reference manual" manual, as appropriate.

In this stage careful consideration must be given to the implementation of the activities, including budget, time allowance, coordination, coaching, evaluation, reporting and feed-back, etc.

11. Provision of specific training concerning those activities for which detailed criteria have been set up. This training would normally consist of one-day sessions (per activity) for those who are to perform the activities concerned. Training should also be provided to middle man-

agers to supervise and evaluate the relevant performance of their subordinates.

12. Execution of the specific activities including necessary coordination and coaching from steering committee, coordination committee, line management and staff-functions.

Coordination of activities, measurement and evaluation of activities in comparison to the criteria set, feed-back to people concerned and coaching, reporting to relevant management levels for follow-up, commending and/or correction as deemed necessary. Regular in-company audits concerning the specific activities as part of the management system/program.

13. Periodic (external) auditing to evaluate total program performance and effectiveness.

Repeating of activities 5, 6, and 10 through 13 until the desired level of safety and loss control performance has been obtained.

This safety process will then provide the improvement process indicated in Figure 6 in which the desired level of safety performance is obtained through a series of "Plan-Train-Do" activities. The In-

ternational Safety Rating System serves as an external reference.

To Conclude

Past and present are indicating the future of safety: an increasing emphasis on safety management systems coming from industry as well as from the authorities.

Allocation of safety audit systems in particular will provide us with further insight as to what constitutes a proper and effective safety management system. One of the more successful audit systems is the International Safety Rating System now being operated by the DNV group.

Application of audit systems alone will not lead to desired safety improvement. Such results will only come if audits are being executed as part of a well-structured improvement process combining auditing, consulting, and training into a Plan-Train-Do process.

Success in safety will not be for those people and organizations which give up half way — there are no quick fixes. Necessary ingredients for success are:

- the will and leadership to improve
- a concept on how to improve — Plan-Train-Do
- a tool to practice safety management — the ISRS

•the persistence to keep on doing the right things the right way

Figure 6

