

Safety - Turning the event into a process.

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Abstract

Roads Service is an agency of the Department of the Environment for Northern Ireland, responsible for over 24,500km of public roads. Roads Service's unique position in the United Kingdom and Ireland as the region's sole road authority gives it the ability to implement consistent and cost-effective practices.

Roads Service's overall aim is to ensure the provision of a safe and effective road network throughout Northern Ireland (NI), recognising the need to protect the quality of the environment.

Roads Service employs 1035 professional, technical and administrative staff and 950 direct labour workers. The workforce is involved in a wide range of work activities, each with its own particular hazards and risk control measures. It is important, therefore, that the safety controls identified through risk assessment are implemented in a way that promotes an improved level of safety across the organisation.

Since 1997 Roads Service has completely revised its approach to safety. The resulting system, embracing many of the principles of the International Quality Standard (ISO9000), is exceptional within the NI public sector and perhaps even within NI industry. This paper addresses the many positive aspects facing an organisation taking this approach.

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Key Words

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Introduction

Milne (1926) introduced a character with a profound insight into modern management thinking (see inset). Notice that in Milne's opening paragraph health, safety and welfare is high on the agenda, if only time could be made available to deal with the issues.

"Here is Edward Bear, coming downstairs, bump, bump, bump, on the back of his head, behind Christopher Robin. It is, as far as he knows, the only way of coming downstairs, but sometimes he feels that there really is another way, if only he could stop bumping for a moment and think of it"

Opening paragraph from AA Milne's "Winnie-the-Pooh"

This paper describes how the Roads Service took a 'moment' to think about a new approach to safety management, taking account of current industry best practice.

Health and Safety Legislation since 1974.

For many companies, coming to terms with the requirements of the Health and Safety at Work (HASAW) Act 1974 or the HASAW (NI) Order 1978 has meant a long period of learning. Perhaps it would be more accurate to say that it took a long time to develop an understanding of the main requirements of the health and safety legislation.

One of the key concepts in the production of the new HASAW legislation was the desire to replace the mass of existing legislation with one single Act that would apply to all workers. The key obligation for employers was to be aware of all the risks associated with

their industry and to put in place sufficient risk control measures to protect the workforce. While the principle was sound, the practice and degree of compliance varied significantly across the country and across the different industry sectors.

The development of a Single European Market in the early 1990s brought more challenges. Differing standards and legislative requirements across the member states were so significant that the potential for cross-community competition was seriously impaired. There was a clear need for the European Union to address the issues raised by this situation and at the same time give a renewed impetus to the direction that health and safety should be taking.

The harmonisation of European health and safety legislation was accomplished through a framework of directives aimed at covering all risks associated with workplace health and safety. The implication for the UK was the 1993 Management of Health and Safety at Work Regulations (MHSWR) and the related regulations¹, collectively and colloquially known as the '6 pack regulations'.

The direct effect of European intervention was to make explicit that which had been implied in the original HASAW legislation. In particular, the new legal requirements placed risk assessment at the heart of health and safety management and gave it legal backing.

¹ The related Regulations are; Provision and Use of Work Equipment, Manual Handling, Workplace (Health, Safety and Welfare), Personal Protective Equipment and Display Screen Equipment.

Public Sector Response

The public sector always considered that it should give a lead in complying with the HASAW legislation. This was done through the production of detailed safety policies and the development of safe systems of work relating to all workplace hazards. Over the years there has been the fear that compliance with the HASAW legislation could not be guaranteed unless everything was carefully documented and nothing was overlooked. The net result was that volumes of paper were created as a means of defence. This proved to be counter-productive, since it was not always logical or cohesive and was very difficult for the end user to assimilate.

Recently a more practical approach has developed which has seen a trend towards managing safety in line with an accepted management model. As the public sector comes to accept this position the fear has subsided and organisations have grown more confident in their ability to manage safety within the requirements of the European framework.

Merging quality and safety

In the 1990s many forward looking companies adopted strategies to achieve business excellence and world class performance. They used total quality management (TQM) to develop and support an integrated approach to business management. It has only recently been realised that there is a need to apply the TQM principles to other aspects of the business. As a consequence the notion of fully integrating quality, safety and environmental management systems emerged.

In 1997 Roads Service recognised the need to revise its current safety management system, which had been developed in the early 1980s. The existing arrangements were a collection of safety circulars, hazards warning notes and safe systems of work. Much of the dissemination of information was reactive, often dealing with specific legislative requirements. In order to derive the benefits from a more cohesive and comprehensive system Roads Service grasped the opportunity for a radical improvement of health and safety management, using appropriate continuous improvement tools (Juran 1986). Juran's methodology is widely used throughout the Northern Ireland Civil Service (NICS) to improve its business processes.

Using guidance from the UK Health and Safety Executive's (HSE 1997a) and the British Standards Institution (BSI 1996) a safety manual has been produced, embracing many of the values of the International Quality Standard ISO9000. The new safety management system integrates quality and safety in a way that provides clear and concise guidance to all of Roads Service's employees. It places at its core the need for suitable and sufficient risk assessments to determine the degree of control necessary to minimise the risk. Juran (1986) defined a quality product or service as one that is fit for purpose from concept to disposal. Adapting this definition to the development of safety management systems reflects Roads Service's firmly held belief that health and safety advice should not only address the physical and mental welfare of its employees but also the financial well being of the Service. This way a strong and successful future is assured.

Many organisations work to the principles laid down in HSE's health and safety management guidance. Roads Service's integration of quality and safety has allowed it to produce a safety management system that is the first of its type in the NICS and possibly even within NI industry. Clearly there is a balance to be struck between the effort

expended and the level of improved safety performance achieved. The ‘law of diminishing returns’ applies. Roads Service believes, therefore, that the degree of detail should be the minimum required to achieve the optimum level of safety within the organisation. This approach ensures that resources are directed in a measured proportion across the risk spectrum². This means that managers and the workforce can easily understand the key requirements.

Importance of Correct, Up-to-date Information

Implementing safety measures and systems costs a considerable amount of money, but even though Roads Service’s accident rates are no greater than the sector norm, failures in safety remain a significant cost both in financial and human terms. The total number of accidents in Roads Service, including non-RIDDOR accidents, is approximately 150 per year (McAleenan 1998). On average this results in 2400 lost workdays which costs Roads Service approximately £135k per year in lost wages. There are many other associated costs to be considered such as down time, staff cover, accident investigation and procedures reviews. Conservative estimates suggest that they could be in the order of five times the wages bill (HSE 1997b) which, if taken together with the cost of employers liability claims, brings the total yearly cost of accidents (failure costs) to around £1.1m. Even if the improved safety management delivers only a 10% reduction in the accident rate, Roads Service could accrue savings of around £100k per year, not to mention the considerable savings in human terms.

Roads Service has set its accident reduction target at 10% over a three year period realising, however, that there is scope to effect even greater efficiencies through careful

² The risk spectrum spans from the low risk areas within the office environment through to the high risk areas such as motorway maintenance and confined spaces entry

targeting of resources. Loosely applying the Pareto Principle would suggest that 80% of accidents will fall within 20% of work activities and that 20% of accidents could give rise to 80% of the costs. The tools are available to establish the critical few areas where most accidents occur and the capability exists to use the information to force the trend further downwards. What is required beyond that is the will to tackle these issues head-on.

Over time the cost of accidents and injuries, lost time and liability claims will reduce as the more proactive safety measures come into effect. The intention is that the savings should be directed towards prevention and appraisal matters such as:

- Risk assessment,
- Workplace inspections,
- Training, and
- Audits and Reviews.

Over the years the Roads Service accident rate has been dropping steadily, having its last major downward turn after the introduction of risk assessment early in the 1990s. The time is right for a renewed impetus to steepen the decline still further. This will only be achieved by concentrating on the highest areas of risk within the risk spectrum. The accident rates statistics since 1994 are presented in Figure 1.

Key features of safety management systems

Jackson and Ashton (1993) indicated that the test of any management system is in its documentation. However documentation is only one element of a system designed to embrace the principles of quality and excellence in the health and safety field. There are three distinct levels required to create a safety management system; policy & organisation,

safety procedures and documentation.

Policy & Organisation - A health & safety policy should be concise, comprising a general statement of intent and an explanation of how safety is to be managed within the organisation. It must detail how the safety system fits with the standards for occupational safety and health in areas such as;

- Who is responsible for health and safety at various levels,
- How these responsibilities are allocated,
- how policy implementation is to be monitored, and
- what annual targets for health & safety and accident rate trends have been set.

The Safety Procedures - This crucial document details how the organisation will ensure compliance with health and safety legislation. It relies primarily upon suitable and sufficient risk assessments to determine the necessary risk control measures. The document may be classified into safety management and safe working procedures. All the procedures are produced in a common format, modelled on the quality assurance procedures of ISO9000, under the headings;

- Title.
- Purpose - background and objectives.
- Scope - persons or work areas affected.
- Definition - any necessary technical jargon.
- Procedures – short, numbered, bullet points/ charts or graphs.
- Responsibility - which staff member/ group has responsibility.
- Documentation - forms, control sheets etc. which make the system auditable.
- References - related procedures, instructions and guidance.

Documentation - The safety management system requires supporting documentation such as risk assessments, control sheets and records of the operation of the system. These documents form an audit trail, which seeks to determine the extent of non-conformance and areas with potential for improvement, thereby closing the feedback loop of the management system.

Management and employee ownership

No system will ever succeed without buy-in from senior management and the staff. The challenge facing the architect of any health and safety management system is to establish and maintain a balance between these two, sometimes conflicting, interests. The objective must be the development of a quality-based safety system that encourages total employee involvement in the safety management process.

Before developing the new safety management system Roads Service conducted a targeted sample survey in July 1997 across all disciplines, grades and business units. The survey examined deficiencies in the current arrangements and sought respondents' views on what features and information would be required. The survey indicated a high level of dissatisfaction with the current arrangements, citing them as unwieldy, unprofessional and often too detailed. There was an overwhelming desire for documentation that is clear, concise and accessible to all staff. The suggestion of an electronic version of the documentation received widespread approval and will be introduced to the Roads Service Intranet in the coming months.

It would be fair to say that Roads Service's new approach to safety management has been designed with impact in mind. It uses plain English in a concise manner and supports this with challenging graphic illustrations. While reaction to the artwork has been varied there can be no doubt that it has sparked some interesting debate. When employees are stimulated to discuss the design of a safety manual it means that they are more likely to open and read it than to put it in a drawer. So begins the process of integrating safety matters into everyday thinking.

The new approach is as much about ensuring that safety does not become a single event but rather that the whole process becomes enjoyable and eventful for all concerned.

Consequently the revised safety management system contains the following key elements;

- a new safety manual,
- a simplified approach to risk assessment (also available on the intranet),
- a new pocket safety book, and
- a safety awareness campaign for all current and future staff.

There was wide consultation during the production of the pocket safety book. The general consensus was that it really should be pocket sized and present the information in a simple, 'do-don't', format (Figures 2 & 3). The success is evident in the fact that it has rapidly become the first point of reference for most employees requiring safety guidance.

Ingredients for success

The essential ingredients for success of any system are knowledge, behaviour and attitude within the workforce. If we can get these right then the effort required to reduce workplace accidents lessens as all staff work in partnership to improve. Often referred to as a positive safety culture, it is about an attitude of mind that promotes co-operation

across grades and disciplines within the organisation.

In order to survive in a competitive marketplace it is essential for a business to have knowledge and understanding of why it does the things it does. It is time for a move away from the 'can't do' attitudes, so prevalent in the safety profession of the past towards a proactive business-oriented 'can do' approach. It is very important to use positive management tools to find solutions (such as risk assessments, audits and accident investigations) that match the culture and discipline of the organisation.

It is best not to attempt behaviour change by coercion. While that can bring about temporary changes in behaviour, it often reverts to the norm when the threat has been removed. The better option is to work on positive behaviour changes through leadership and good example. It is far easier to move a piece of string by taking hold of one end and bringing it along with you than it would be to push it from behind. This is certainly true in the case of health and safety where strong leadership and commitment from the top is more likely to engender positive behaviour changes.

When knowledge and behaviour is properly considered the attitude often takes care of itself. However it is worth remembering that a bad attitude to work does not in itself make a bad worker. Attitudes are the consequence of years of varying personal experiences and often can not be easily altered. So the temptation to get caught up chasing rainbows should be avoided. Instead, positive results can be ensured by applying the principles of total quality to health and safety in the workplace.

Roles and responsibilities

The safety advisory officer has played a central role in safety management within Roads Service since the enactment of the HASAW legislation. It is now recognised that safety management is not something that can be left to those few individuals, but something for which every employee, from the top down, has a responsibility. The new approach is quite different to what the Service has been used to over the years, but it is an approach that is needed for the safety strategy to be successful.

The safety manual clearly defines the key tasks and major outputs for everyone within the organisation; policy makers (at boardroom level), planners (all managers) and implementers (the workforce). Additionally each safety procedure details who is responsible for their successful execution. Any new system causes concern among those who have to use it, but in this case nobody lost control or gained any additional responsibility, rather the roles have just been more clearly defined.

The approach adopted is in line with thinking at the highest levels within the NI Health and Safety Inspectorate and in the Health and Safety Executive in GB. The safety advisory role of giving clear and succinct professional advice whenever it is needed remains crucial to the success of the new approach.

Roads Service has high expectations for the success of their new system but experience shows that;

SUCCESS = RESULTS – EXPECTATIONS.

In other words success is only recognised when results exceed the expectations. So if success is to be achieved then high expectations must be met with excellent results.

Partnerships to success

Roads Service strongly believes in the value of partnerships to achieve quality improvements. Within the field of health and safety Roads Service has partnerships at many levels both inside and outside of the NICS. The most notable partnership within NICS is that with its sister organisation, the Water Service, since both services have many of the same opportunities for improvement. Roads Service has also developed and maintained a close liaison with the Health and Safety Inspectorate throughout the production of its safety management system. These have been invaluable and will continue for many years to come.

External partnerships include liaison with the UK highways authorities on matters of mutual interest and working with the Construction Employers Federation and other client bodies to improve the safety performance of NI contractors.

Important though all these partnerships are, Roads Service will only achieve its target of reducing workplace accidents if all the staff work together in partnership. The search for improvements in working methods is everyone's responsibility and ideas for improving safety are always worthy of consideration whatever the source.

Implementing a health and safety management system based on sound management principles and having a track record of improved safety performance is a legal requisite that is increasingly being viewed as a positive factor in business success. This approach

reflects the value of the worker to the organisation and accepts that protecting the employee is the right reason to 'do safety'. Employees who feel valued are inspired to work for the success of the organisation. Roads Service accepts this thinking and is actively seeking health and safety benchmarking opportunities, with like-minded organisations, in an effort to achieve business excellence.

Conclusion

Manning (1998) said “One of the most dangerous things you can do is show up for work!” He is right that work can be a dangerous place. However, it is our responsibility to ensure that no matter how dangerous the working environment is our workforce is not harmed by it. This we must do through an assessment of the extent of risk and the production of clear and concise risk control measures.

There is a need for plain speaking in the way that the safety message is communicated to all employees. In producing its safety management system Roads Service has honoured its guiding principle; to keep the degree of detail at the minimum needed to achieve the desired level of safety. Safety can not be treated as an event or a series of single events spread across the working year. It is a thought process within each of us that can and should be reinforced through the production of original and thought provoking material.

This paper has presented some ideas for managing safety, which although logical are still deemed to be quite radical. This fresh approach has received broad support within Roads Service and its adoption has certainly changed how management and staff view safety management. Change is never easy to accept but often it is inevitable and in this case the

changes outlined are to be welcomed.

The challenge remains for all the leaders in Roads Service, to ensure that the changes on paper translate into positive changes on the ground.

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Bibliography

Health and Safety Executive. “Successful Health and Safety Management” HS(G) 65.

HSE Books 1997a

Health and Safety Executive. “The Costs of Accidents at Work” HS(G)96. HSE Books

1997b

“BS8800:1996, Guide to Occupational health and safety management systems”,

British Standards Institute., 1996

Jackson, P. and Ashton, D. “Implementing Quality Through BS5750 (ISO9000)”.

Kogan Page (1993)

Juran, JM. “The Quality Trilogy – A Universal Approach to Managing for Quality”.

Quality Progress. pp21-24, 1986

Manning , Michael, V. “Safety is a People Business” A Practical Guide to the

Human Side of Safety. Rockville, MD: Government Institutes, Inc., 1998

McAleenan, Ciaran. 1998 “Quality in Safety – A new Beginning”. (unpublished)

Milne, AA. “Winnie-the-Pooh”. Methuen & Co Ltd, 1926

University of Bradford - European Centre for Total Quality Management. “Total

Quality Management of Health and Safety”. HSE Contract Research Report 153

(1997)