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INTEGRATED ASSESSMENT - EXTENDING INTERNAL QUALITY AUDITS INTO HEALTH AND SAFETY

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1. INTRODUCTION

The demands on a business, in terms of regulations and pressures from society, are continually growing. Besides the need to satisfy share-holders and customers, it is increasingly necessary to demonstrate to regulatory bodies and the world in general that the business is not adversely affecting the environment and that employees, customers and end users will be safe with the company's processes and products.

At first sight, these increasingly demanding requirements would seem to add a growing burden to the management and operation of a business. This need not be the case. Most businesses are now, to some extent, committed to Quality and have an internal Quality Management System in place. With the application of flexibility and common sense, this management system and, in particular its audit function, can be extended to cover a number of additional areas. By encouraging an all-embracing view of an organisation, assessments integrated over quality and health & safety issues can become invaluable tools in the development of integrated business management.

2. BUSINESS REQUIREMENTS

2.1 The laws

Each nation has a (growing) set of regulations to which all businesses must conform. In Europe these are increasingly based on European Directives such as the Low Voltage Directive, Electromagnetic Compatibility Directive and the European Directive on Product Liability. Besides specific technical requirements, all such regulations place considerable emphasis on the management of the hazard that they address.

This paper concentrates on the general principles that apply to all of the above, using as an example the UK's Electricity at Work Regulations (1989). These regulations require precautions to be taken against the risk of death or personal injury from electricity in work activities.

2.2 The real objectives

Satisfying the administrative requirements of regulations should not be seen as an end in itself. The intent of Safety Regulations is that businesses must:

* Provide a work environment that is safe for employees

* Design, manufacture and supply goods that are safe for their intended purpose

* To eliminate danger to life and property as far as is reasonably possible

All too often, documentation and procedures are put in place which appear to satisfy the letter of the law but which are ineffective in satisfying these real goals. As any good Quality Manager will state, procedures for the sake of them are worst than useless - they are wasteful and counter-productive. The objective is to develop procedures which are not only effective in creating safe environments and products, but also efficient.

The basic premise of integrated management is that a single management system (including systems for documentation control, design control, project review etc.) considers all business requirements, be they concerned with health & safety or share-holders' dividends. The objective of integrated assessment is thus to identify poor or ineffective procedures in the general running of the business, namely to look for and eliminate 'Common Cause' weaknesses:

3. COMMON CAUSE PROBLEMS

3.1 Breakdown in Communications

In the analysis of circuits and systems for reliability hazards, the technique of 'Fault Modes and Effects Analysis' (FMECA - [1]) is often applied. This basically asks the question, "How can each part fail and what effect will this have on the overall system?" The same approach can be applied to management systems. The parts of a management system which may be considered include: communications, determination of policy, acceptance of responsibility, control of forms etc.

Whatever system is being analysed one weak link could cause a range of effects. Failure of a main power supply to a railway network can bring both signals and trains to a halt: this is termed a 'Common Cause Failure'

An example at the management level might be a breakdown in communications. If managers do not pass down the latest policy and procedures to their staff, it will not be surprising if these employees fail to carry out their defined duties. Both safety and product quality would be equally affected.

3.2 Human Reliability

A theme emerging under the heading. 'Human Reliability' [2] is that humans play a vital part in the reliable operation of any system. Besides the physical 'Man-Machine Interfaces' (which are, for example, a feature of the VDU regulations), staff attitudes often influence the effectiveness of a system. Many organisations can identify individuals who object to rules and written procedures on principle; whether they affect product reliability, user safety or, indeed, their own safety. Clearly, management systems are just as vulnerable to human frailties as mechanical or electronic systems.

3.3 The auditor's role

When an assessor observes that a management system has failed, he will need to be able to decide whether this is due to:

* The lack of a system

* The system not having been adequately explained to its users

* A system that isn't responsive to the real needs

* Individuals ignoring the system

As BS EN ISO 9001 [3] now requires, Corrective Actions in response to a problem, should not only put right the particular problem, but also establish the root cause and prevent such errors in the future.

4. ELECTRICAL SAFETY

Whilst the general principles above can be readily applied in any audit situation, it is important that assessors (auditors etc.) are aware of the key features of any standards or regulations that the management system is supposedly covering. That is not to say that all auditors should be experts in Chemical or Electrical Safety, for example, (since this might entail excessive training costs) but they should have received a basic training and understand the key issues. For Electricity at Work Regulations (1989) these might include:

* The need for staff involved in the design and operation of electrical systems to have appropriate knowledge and experience, and an understanding of the current regulations and expert guidance material.

* The need, when selecting items of electrical equipment, to take into account the environment in which it is to be installed.

* The need for a clear management policy on when and how 'live working' is permitted.

* The principle of removing danger by disconnection of the electricity supply, and the need for written procedures which are clearly understood.

In order to satisfy these requirements, a business will require internal Electrical Safety rules. It is beneficial, when introducing such rules, to provide internal auditors with an explanation of them. By conducting a trial audit around the new rules a revised set of Audit Check Lists can be developed which incorporate questions on Electrical Safety. These would be based on the internal rules and experience of their application during the trial audit. A sample of the questions that might be included are given in Table 1.

Table 1
Example Audit Check List Questions

6. Who is the appointed manager of the area with respect to Electrical Safety?

7. Who is in charge of the following aspects of the equipment used in the area:

   a) Calibration (i.e. who is the Equipment Monitor)

   b) Maintenance

   c) Safety (i.e. has the Appointed Manager delegated responsibility for specific bits of kit? If so, to whom?

Thus, the question of responsibilities is not restricted to Electrical Safety or to Calibration, but attempts to establish an overview. In posing the above questions, an auditor will establish not just whether a given department has someone responsible for avoiding electrical accidents, but also how the safety responsibilities are interfaced with other required duties.

5. CONCLUSIONS

Risks of electrical accidents or dissatisfied customers, chemical accidents or Product Liability claims are all symptoms of failure of the management system. Performing assessments that look beneath the letter of the relevant laws and standards can provide valuable information in the quest for improved business performance.

REFERENCES

1. IEC 1025 Guide to Fault Modes and Effects Analysis, 1993
2. IEC TC56(Secretariat)423 Dependability - Application Guide on Human Reliability (Committee Draft, Sept. 1994)
3. BS EN ISO 9001 (1994) Quality Systems - Model for quality assurance in design, development, production, installation and servicing