HEALTH AND SAFETY DEVELOPMENT PLANNING

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by

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Abstract

Pressure is increasingly being exerted on organisations to improve their management of health and safety, either as a result of their own recognition of the need for change, or it being imposed upon them by external forces. Moving from the existing to the desired state, is a process which is inevitably linked with that of the management of change. How then is it to be achieved most effectively?

While the components necessary for the development of safety are generally recognised and encapsulated in, for example, the Health and Safety Executive’s *Successful Health and Safety Management*, guidance on planning for their implementation is not readily available. However, the processes for doing so may be closely linked with those that have been recognised for many years in the field of organisational development. From this source, the author has developed a model for planning the introduction of safety-related improvements.

This research investigates, against the now familiar elements of the safety culture, the extent to which organisations are undertaking safety development planning. Measured against a survey population of 189 companies broken down by company size and industrial activity, results were compared with the components of the author’s *Integrated Model of Change*, formulated to meet the need for guidance on planning the implementation of improvements. From data compiled from responses to the research questionnaire, it is evident that while the elements of the safety culture are well recognised, and that a significant level of planning is claimed to be taking place, its key detailed stages are not being implemented to a comparable level. Although the larger companies are more likely to be advanced in the planning of improvements, there is no such pattern in relation to the type of industrial activity.

Information gathered from the data, and compared with the core components of the change model has, therefore, been used to further develop the role of planning, in the management of change in safety-related improvement.
Acknowledgements

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Finally, my wife Pamela has remained supportive over what, in retrospect, seems to be a lengthy period of research. Without her encouragement, it would not have been possible.
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CHAPTER ONE - INTRODUCTION

1.1 Deficiencies in Current Safety Development Methodology

This study attempts to evaluate the significance of a comprehensively planned approach to the implementation of safety improvements. It is specifically concerned with establishing how far they are currently being undertaken to a detailed planning scheme, how effective that may be, and what elements might be missing from such programmes. It reviews the health and safety literature to establish how far it currently addresses this issue and what other specialist sources of learning may be available, and of assistance.

The need for the research evolved from the author's observations of the processes by which a number of companies had attempted improvements to their management of safety, and from personal experience of difficulties encountered during the development process; the former having been the subject of his earlier research (Fisk, 1995).

This earlier research revealed that there rarely existed a formal improvement plan based upon soundly researched need. In practice, a commitment would be given to achieve one, or a series of goals, and development would take place. Complications would often arise and result in delay, dilution, and even abandonment, of the original plan. Where objectives were achieved, it was frequently synonymous with some attention having been paid to the detail of the planning and implementation process. Difficulties encountered were usually at a relatively basic level. They could, with forethought, have been recognised during the planning stage as potential barriers to success, with corresponding avoidance strategies then incorporated into the development programme.

Such deficiencies in safety management and the resultant publicity which has tended to follow certain cases of serious or fatal injury at work, is generally leading to a heightened awareness amongst employers that accidents are liable to be costly in both human and
general resource terms. Also, that failure to meet legislative compliance is increasingly likely to result in expensive litigation. This awareness has been raised by the first conviction in England of a company for corporate manslaughter (R v Oll Ltd, 1995), and an increasing, although not always consistent level of fines imposed for health and safety offences. Furthermore, the Law Commission's Report (1996) proposed the introduction of a new offence of "corporate killing", and it was on this that the Home Secretary, at the March 1997 Labour party conference, indicated he was considering new legislation. It has reinforced the possibility of indictment by the enforcing authorities, and of harsher penalties for failing to meet legislative standards. Indeed, the harsh reality, endorsed by research conducted by Genn (1993) and Ashby and Diacon (1996), confirm that the primary motives for employers occupational risk management, are those of regulatory compliance and the avoidance of legal remedies, not from a sense of moral responsibility.

There is an increasing wealth of information, from a variety of sources to assist employers with their management of safety and reduce the potential for such punitive legal measures. This information identifies the action considered necessary to achieve compliance with health and safety legislation and accomplish effective accident causation prevention. Indeed, the need to set policy, organise development, plan and implement improvements (within limited parameters), measure, audit and review performance, are now clearly established developmental principles under the Health and Safety Executive's, Successful Health and Safety Management (HSG65). (1997a). However, a weakness does exist in the information available and must be addressed if the achievement of objectives is to be attained. Neither HSG65, other Health and Safety Commission or Executive publications, or the diverse range of health and safety related books and research material, adequately raise awareness of the importance of formally researched and prepared development programmes. Specifically, they do not identify the means by which such development may be most effectively introduced, and the need to be aware of the potentially negative issues that are likely to arise. Unless potential problems are anticipated and prepared for, they are liable to inhibit success. This weakness is often reflected in a failure of those involved (such as the
safety practitioner) in seeking to achieve improvements and to routinely recognise and address developmental problems at an early stage.

The author's preliminary research identified that many health and safety development projects do, indeed, proceed without being underpinned by formally constructed improvement programmes (Fisk, 1995). Progression from one element of the project to the next would often take place, with difficulties that arose failing to be recognised and corrected. Within the management of other projects, while there might have been an acknowledgement that informed decisions would need to be reached on the relevant issues to be dealt with and obstacles avoided, there was generally a lack of appreciation of the potential problems to be faced. For those who were aware that this was an area to be addressed, constraints on time often meant that an investigation of potentially negative development issues, and the methods by which they might be most effectively managed, were not pursued. The resulting failure of what appeared to be well researched and developed plans occurred all too frequently, being evident in accident and injury statistics and employer prosecutions.

These difficulties with achieving improvements are compounded by the fact that the preparatory stages of development, whether or not consciously directed towards the development of the safety culture, will often be the point at which success or failure of an initiative is determined. However, the planning undertaken tends not to be directed towards preparing to achieve organisational change and effective safety management systems, either at a company strategic, or local operational level. More frequently, as already identified, it reflects the current guidance contained in HSG65. This is largely restricted to identifying the measures that need to be taken at an immediate level, such as setting the objectives for the elimination of hazards and reducing risks through the selection and design of facilities, equipment and processes. The result is the failure of planners to appreciate that there are two very different types of approach to change required. The first (the HSG65 approach) is to identify what components are required to be introduced or changed. The second is to
effectively plan how to introduce these new or revised components in a programme of controlled, integrated change, in which there exists an awareness of a range of potentially inhibiting factors, and how they are to be managed.

It is these gaps in development methodology that this research is intended to address. It will do so by the development of a model for the implementation of planned change. By comparing this model with the results of an empirical study, it will be possible to identify specifically where current deficiencies exist in development methodology, and the action that is required to address them, in order to achieve the successful introduction of safety management initiatives.

1.2 A Planned Approach to the Implementation of Safety Improvements

At an operational level, those managing the development process are, therefore, in some difficulty. The absence of the recognition of a problem, or guidance on how it might be overcome, have resulted in little attention being paid to planning and avoidance strategies. On that basis, the attainment of effective accident causation prevention will often prove elusive unless those issues that have the ability to impede development are identified and strategies planned and implemented to address them. It may require the management of major strategic organisational change on a national scale, such as that undertaken within the National Health Service in the 1980's. The processes and management for this were the subject of a major analysis by Pettigrew, Ferlie and McKee, in *Shaping Strategic Change* (1992) (not safety related). Alternatively, it may be that of change at the single company level, involving only one aspect of safety. In either case, the need for a well-prepared and developed programme of change is of paramount importance.

Such preparation, however effectively it may be executed, as well as being sound business sense is, in terms of health and safety, being increasingly directed towards the improvement of the organisational development of safety, encapsulated within what is now known as the
'safety culture'. This was first alluded to in a paper by Zohar (1980) and subsequently defined by, amongst others, the Confederation of British Industry (1990) and Advisory Committee on the Safety of Nuclear Installations (HSC, 1993). It is a term that now has importance to both organisational theory and safety (Cox & Cox, 1996), each of which will be integral features of this research. The Health and Safety Executive brought the significance of the absence of a safety culture sharply into focus in *Out of control: why control systems go wrong and how to prevent failure* (1995), stating that it “may contribute significantly to an eventual failure which has a technical cause”.

Within the broad context of the achievement of a safety culture, the 1997 edition of *HSG65* marks the Health and Safety Executive's latest and most significant contribution to organising for safety. However, in terms of planning for the implementation of safety improvements, its emphasis on identifying targets, performance standards and the application of physical safeguards does not, at a practical level, provide the detail of how each is to be achieved. The aim of this research is to redress this imbalance, and provide a comprehensive framework within which planned safety development may take place. This study also aims to provide evidence to establish whether, once the need for each of the above three components is clear, two additional but fundamental requirements of:

*production of development plans, including performance standards, for the implementation of improvements*

which will incorporate the

*identification of potentially inhibiting factors and production of associated remedial strategies*

will need to be met if objectives are to be attained.
Figure 1.1 illustrates where this stage should be located (shown by the shaded box) in the procedure recommended in British Standard 8800: *Guide to Occupational health and safety management systems* (BSI, 1996).

![Diagram of Health and Safety Development Planning]

**Figure 1.1:** *The Missing Element of Health and Safety Development Planning*
Both Figure 1.1 above and Figure C.1 of Annex C to BS 8800 (1996), *A procedure for OH&S planning and implementing*, from which it is drawn, show different interpretations of what is considered to be at the core of the planning and implementation process. Although this core stage is located in the same procedural position within each, the former is based on a broad, holistic approach to planning and implementing development which may be summarised as:

**Produce an Integrated Implementation Plan for each Objective**

This is in contrast with the approach in BS 8800 that is based on the more traditional and narrowly focused:

- **Prepare Plan** – to achieve key Objective
  - Draw up Targets

The implications of the BS 8800 approach will be reviewed further in Chapter Two.

### 1.3 Identifying the Way Forward

During the author's earlier investigations (Fisk, 1995), analysis of the 'impelling' and 'impeding' forces (Schell, 1991), which are at work promoting and inhibiting the evolution of a safety culture, were considered to be a promising vehicle for the analysis of the potential weaknesses of its component parts. If the relative strengths and weaknesses of each were identified, corrective action could then be taken. To facilitate such an approach would necessitate the development of a model that incorporates the requirement for corrective action to be executed to precisely set performance standards, without which a meaningful measure of performance would not be possible (Bird and Germain, 1987). Furthermore, as many features of safety, quality, and environmental management systems are similar (Fido and Wood, 1989), and have
outcomes that are inextricably linked to the management commitment to develop them. the research has relevance to all three disciplines.

It is hypothesised that this approach to development, and the emergent information, will facilitate the production of improved implementation/development programmes. These will incorporate the means by which those issues which are likely to arise during development and which often impede effective safety management, may best be resolved. This research therefore, addresses a long standing, but largely overlooked problem. Its main thrust is directed towards establishing the components of the detailed planning of the change process and incorporating the means of identifying potentially inhibiting factors and how they are best managed. As such, a change to existing health and safety development methodology will be advocated, in which the incorporation of these two features into improvement programmes is routinely undertaken with the objective of addressing potential obstacles to progress.

It is anticipated that the findings of the research will enable a significant contribution to be made towards the achievement of an organisation's safety culture and its contributory safety management systems. They should do so by providing the essential link between the commitment to develop the safety culture, and implementing, developing and maintaining its elements by the largely neglected process of comprehensively planning and implementing the process of change. In this way, change may be managed to take place successfully in what Wilson (1992) has described as a 'planned and implemented' manner, rather than being an 'emergent process', in which objectives would otherwise be achieved, largely through trial and error.

Unless such issues are addressed, organisations are likely to fail, either in whole or in part, to implement, develop and maintain, the measures necessary to achieve effective accident causation prevention. It is anticipated that the information gathered during the research will support this working hypothesis and the corrective methodology upon
which it is founded. The empirical evidence should also uphold how it is advocated that the stages of improvement are most effectively planned, developed and implemented, thereby avoiding those difficulties often encountered during the improvement process.

The significance of this approach is illustrated in *HSG65* (HSE, 1997a), which identifies that the majority of accidents and incidents are not caused by 'careless workers' but by failure in control (either within the organisation or within the particular job). It seeks, therefore, to give this control by enabling a smooth transition from a situation in which an organisation's management of safety and, therefore, its safety culture, is incomplete, to one in which that culture is part and parcel of the every day life of the organisation. Most importantly, that its health and safety risks are managed in a competent and professional manner. As we are reminded by Reason (1990), "the avoidance of latent failures is the essential foundation of safety management and involves the identification of hazards, assessment of risks and selecting, implementing and monitoring preventative actions”

1.4 Research Outline

The research will be structured around the principal objective of identifying the means by which the detection and resolution of potentially inhibiting factors on health and safety improvement programmes may be achieved.

A literature review will be undertaken in Chapter 2 to establish the extent to which the development of safety, in this area of improvement, appears in written works. However, it is clear from earlier investigations that the health and safety literature in this area is sparse. Material relating to organisational development theory and practice is also relevant and will be included.
CHAPTER ONE

Chapter 3 will describe the research methodology, including the questionnaire design, and how this was developed to explore the variables that relate to the failure of many employers to adopt a systematic approach to development. It will also investigate the extent to which the establishment of performance standards, and identification and rectification of negative issues which are likely to arise, is taking place.

As the research is considered of relevance to all organisations, irrespective of size or industrial activity, it is essential for data to be obtained on a truly representational basis. Therefore, data gathered from companies within nine separate industrial groupings, each being sub-divided into three employee size ranges, will permit analysis to distinguish the effect that company size and industrial activity may have on the manner in which development is currently taking place. Also, what patterns, if any, may be discernible within such developments.

Data analysis will be described in Chapter 4, and will seek to establish:

(i) Those elements of a safety culture considered relevant to respondents.

(ii) To what extent work is currently being undertaken to implement, develop or maintain these elements.

(iii) How the need for improvement is being identified.

(iv) Whether the planning of developments is a feature of the implementation of improvements.

(v) Whether standards are being set by which progress can be measured.

(vi) What difficulties, if any, are being encountered in meeting the standards set.
It is anticipated that the outcome of the research may be summarised as serving to provide further insight into:

(a) The common elements in the management of safety that lead to the establishment of a safety culture.

(b) The potential obstacles to progress which must be identified and addressed if safety objectives are to be achieved.

(c) Whether there is a standard approach to planning for organisational development associated with the successful management of health and safety.

(d) That safety performance will be improved where common elements and a standard approach to organisational development exist.
CHAPTER TWO - HISTORICAL PERSPECTIVE AND REVIEW OF THE LITERATURE

2.1 Introduction

This review was undertaken to identify the literature available on the stages involved in achieving health and safety objectives. The underlying theme is that an understanding by planners and initiators of change, of the methodology and dynamics associated with the process, will enable them to incorporate into development programmes, elements which permit a sound basis for change and the avoidance of many of the difficulties frequently encountered.

The review is conducted against the background of a wealth of information having been published on the safety culture and supporting safety management systems (a positive safety culture being the objective to which many organisations aspire). However, it seeks to determine whether, within that literature, traditional development and implementation methodology adequately portrays the stages by which objectives are to be achieved most effectively. Also, does this methodology include the early identification and management of potentially inhibiting factors. Information is, therefore, sought which is in unison with the concept that if such intervention begins at the point at which strategies are initially formed, then an improved end product in which latent inhibitors are either designed out or effectively managed, will be possible. It is in the same manner that behaviour modification, by influencing and involving personnel, is a process which should commence at the point of conception of change, not at its birth (Plant, 1987).

Change may be concerned with those routine adaptations that are required as a result of organisations constantly changing and adjustments being necessary to existing systems to ensure that they remain relevant. An example would be reviews of practices to keep in step with health and safety legislative requirements, such as with the periodic reviews of
assessments required under the Control of Substances Hazardous to Health Regulations 1994. In this respect, if effective safety management systems are in place, then any necessary change could be largely planned and encompassed within existing procedures. On the other hand, no organisation can remain in a static position. Improvements will be required once systems, policies and procedures and the mechanisms to identify changes in the external forces at work on the organisation have been established. These will need to be built upon, either by correcting or improving existing systems. Change may also be innovative in nature, this being the most challenging form to be addressed as it requires the ability to recognise where deficiencies exist, and how to implement new ways of doing things, bringing along and involving personnel in that process.

Change may, therefore, simply be about refining the manner in which existing practices are undertaken, or it may be concerned with major organisational developments in which new practices are introduced. In either case, because of the discipline it brings to the planning process, if it is to take place successfully and if advances achieved are to be maintained, it must be planned and executed with care. As Kuorinka and Forcier (1995) stress, “Of all the characteristics that have distinguished successful from unsuccessful change efforts in organisations, the most striking has been the extent to which the change effort has been carefully planned.” Strategic planning, often a precursor to effectively executed change, and with which this research is principally although not exclusively concerned, has been defined by Pfeiffer, Goodstein and Nolan (1986), as “the process whereby guiding members of an organisation envision and develop the necessary procedures and operations to achieve that future.” However, it is to be remembered that strategy is to do with the long-term direction of the organisation, not just a response to difficulties.

The Oxford English Dictionary (1989) describes change variously as: “the act or fact of changing; an alteration in the state or quality of anything; the fact of becoming other than it was”. More specifically, being applicable to innumerably diverse industrial and commercial organisational activities, tendencies, structures, strategies or cultures (Kanter,
1992), defining change more precisely presents some difficulty. It may be undertaken to meet a variety of organisational modification or development objectives, including improved production, service provision, and communications, and increasingly since the Health and Safety at Work Act 1974, safety enhancements. Within the safety field, the considerable scope for change makes it no less difficult to define, nevertheless, it will be involved where new strategies, methodologies, policies and working practices, based on new or reconceptualised activities, are undertaken.

Developing the proposition put forward by Frey (1990), change does require the ability to do something not done before (or revising the manner in which things were previously undertaken). It demands new or revised information and skills, with possibly an adjustment of attitudes and values. Where there is, therefore, a desire to introduce improvements to the manner in which an organisation is managing health and safety, it will be essentially about the achievement of objectives through managing the process of change. It will apply equally to large-scale strategic change, as it does to the low scale incremental development of existing systems.

For many, the ability to undertake what will be a new range of tasks will not occur unaided. Just as the individual who is to undertake new or revised tasks must be adequately prepared, so must the organisation (through the efforts of its change initiators and implementers) be similarly prepared to undertake the life cycle of change, from inception through to completion. The reality is, however, that change will often be based on a knee jerk reaction to events and undertaken without attention being given to identifying precisely what action is required or how it is to be achieved. Furthermore, a lack of understanding of the processes involved may result in a failure to base improvement programmes on sound developmental principles, with the result that they subsequently founder.

Many managers will have doubts about the approach to, and outcome of, change (Burnes, 1996), and the reality is, according to many observers, that organisations can and do
experience severe difficulties in managing change effectively (Howarth, 1988). There is much evidence to support the view that to manage change effectively, even on a small scale, can be complex and difficult (Burnes and Weekes, 1989; Cummings and Huse, 1989, Kanter, 1992). Examples of this are to be found in the move to adopt TQM in American companies, which has been estimated by Philip Crosby (1979), one of the founder members of that movement, to have a failure rate of 90%. The evidence in UK and other European countries would indicate a failure rate of 80% or more (Kearney, 1992; Economist Intelligence Unit, 1992; Whitcher, 1993). Clearly there can be no 'quick fix' solution, and the answer lies ultimately in the development of a positive health and safety culture (HSE. 1994), in which the recognition of the need, and the ability to manage change, is part of the everyday life of managers.

However, the achievement of an effective organisational safety culture is, realistically, a long term objective. Before the implementation of new initiatives, or the introduction of improvements to existing safety management systems is undertaken, an understanding of the forces at work which dictate the need for the altered state, and the processes by which they may be achieved, is necessary. Wilson (1992) emphasised the need to equip managers with training and development skills to enable them to understand and effect change. In this way, planners and initiators of change programmes will be competent to undertake analysis to identify where change needs to be managed and to then develop relevant and comprehensive action plans. In doing so they will be in a position to take a proactive approach, thereby obviating the need to react to events. An intrinsic feature of such a process is that the need to do so is recognised and addressed before an event overtakes any action either contemplated or taken, i.e. that action is taken which would otherwise be imposed by forces inside, or outside, of the organisation. This is a theme which should permeate all such programmes and specifically as far as safety is concerned, the need to meet legislative, good practice and quality requirements, without imposition of objectives from outside bodies, including enforcing authorities and customers.
To identify the literature available, the review was undertaken in the following four main parts:

1. A review of the historical background to the legislative framework within which health and safety is currently conducted, and to consider its bearing on current developmental practice.

2. Consideration of the factors that drive the need for safety related change.

3. The theoretical foundations of formal change models and the development of a model of planned change.

4. The two initial stages of a comprehensive programme of planned change, which will include:
   - An initial health-check of the existing safety management system to establish the strengths and weaknesses and, therefore, what is in need of improvement.
   - Planning the most effective means of securing the improvements identified to be necessary.

This research is not primarily concerned with the later implementation phases of improvements i.e. of putting the overall plan into action and integrating it into the day-to-day workings of the organisation. Nevertheless, the following two phases will be addressed in respect of the planning implications associated with each:

- Action (putting the planning into effect)

- Integration (ensuring the products of the plans are integrated into the workings of the organisation)
For most employers, the first source of guidance in identifying, implementing, developing and monitoring system improvements will be the authoritative literature produced by the Health and Safety Commission and Executive. Where knowledge of the existence of other literature, and the time to do so permits, they will consult books and research material produced by a variety of other sources. While drawing on this material, the review will also investigate that which is relevant to general organisational development, quality and environmental improvements.

2.2 Historical Background

An investigation has been undertaken into the history of health and safety legislation to establish whether this offers any understanding of the contextual implications within which employers are currently managing the risks inherent within their undertakings.

The need to operate closely within the highly prescriptive confines of legislative requirements, was a phenomenon of the pre-1974 legislative era. The legacy of that approach, and subsequent direction legislation has taken with the Health and Safety at Work Act 1974, and that which is now European Union led, is that there has needed to be a rapidly developing sophistication in safety management techniques. Employers are now required to 'predict and prevent', rather than 'diagnose and manage'. On that basis, do any remnants of that early legislative background still exist? If they do, do they help to provide an understanding of why, when viewed in the context of workplace safety, there may exist a gap in development methodology relating to the planning and execution of development initiatives, which this review examines?

The advent of the Industrial Revolution was a developing process that became fully evident in the third quarter of the eighteenth century and continued well into the second half of the nineteenth century. It saw a major increase in industrialisation, decrease in an agricultural based economy, and a population explosion which would raise the English and Welsh
populations from approximately six and a half millions in 1750 to over nine millions in 1801. Population was to increase to sixteen millions by 1841 (Hobsbawm, 1969), and was a process which continued throughout the nineteenth century. The appalling working conditions endured by women and children, and men, during this early phase, are well documented.

In the health and safety field, from a relatively early stage of industrialisation, factory owners rather than companies were recognised as being suitable targets for punishment. The 1830's saw the beginning of the recorded history of employers liability and an effective movement to improve the position of those in employment (Munkman, 1990). In 1831, a social reformer is reported as having advised a parliamentary select committee "I think it would be a very good thing, instead of having fines as the punishment for breach of the law we should make it imprisonment, flogging and pillory. I have no doubt that that would keep them at it" (Bowen, 1998).

Reflecting the views of influential society, employers' liability during the next one hundred and fifty years developed in three phases. These phases have the common major element of being highly prescriptive in nature, and demanding strict uninterpretative compliance. There was little scope for a questioning approach to safety based on risk, and it was not until 1974 that a fourth and very different legislative phase appeared. This has imposed significantly differing demands on the employer, requiring him to address the broad range of risk issues associated with his undertaking which were not required under earlier legalisation.

**Phase One**

Dominating the early nineteenth century was the economic theory of *laissez-faire*, in which the welfare of the community was considered to be best served by leaving the individual free to pursue his own interests. Reflecting this theory, the courts ruled that each workman should look after himself and that if he entered employment that was inherently dangerous, he accepted the risks.
The Factory Act of 1833 is considered to be the first piece of effective legislation. Although two previous acts had been passed, one in 1802 to regulate the working conditions of pauper apprentices, and the other in 1819 to limit their hours of work, as a result of there being no adequate means of enforcement, neither had been effective. The 1833 Act took the important step of appointing paid factory inspectors, and in doing so set the scene for the eventual conviction of offending employers and their observance of the law, not only in respect of this, but future legislation. It applied to all textile factories except those manufacturing silk goods (which were not at the time considered to be dangerous working environments), and regulated the employment of children. Henceforth, they could only be employed from age 9 and were to be given two hours' daily schooling. Long working hours for adults were left untouched.

The 1833 Factory Act was followed in 1842 by the Mines Act, which was largely the result of a Royal Commission set up to look into the employment of children. The report highlighted the conditions endured by women and children in the pits, and had the effect of causing revulsion in public opinion to their predicament. The result was that their employment below ground was entirely forbidden. Furthermore, government inspectors for the mines were also appointed under the Act (the first taking up his duties in 1843, and becoming increasingly effective from the 1850's onwards) (Hopkins, 1979). From this early stage, the volume of legislation relating to the mines, as with that concerned with factories, began to grow rapidly.

The process of law making during this first phase was not characterised by a marked concern for safety, but rather an awakening realisation that society had a moral duty to protect the exploitation of children at work. The maximum working hours duly imposed, and extended to the protection of women, was the most significant feature of the period. Although by later standards, working conditions were primitive, and the improvements were by no means universal, they signalled the gathering pace of changes that were to come. Significantly for safety, the introduction of factory inspectors was, in itself.
recognition that unless the means existed of enforcing legislation, it was unlikely to be effective.

*Phase Two*

Towards the middle of the 19th century, the nature of legislation began to change. As well as there being recognition of the need for the protection of workers in terms of the hours they worked, it began to extend to provide for their protection against dangerous working conditions. An early example may be found in the Factory Act of 1844, which reflected an acceptance of the risks women faced through the contact of their clothing with moving machinery. For the first time, this Act contained the provision for the fencing of machines, and was also synonymous with a more humane stance becoming evident in the decisions of the courts.

The influence of the factory inspectors began to emerge and the Factory Act of 1853 prepared by the leading factory inspector, Leonard Horner, reduced further the working hours of children. However, the scope for the evasion of legislation was considerable and the period is characterised by each act being largely the result of a campaign centred on a particular hazard or problem (Robens, 1972).

In 1864 statutory protection was extended beyond the textile industries into six new trades, including pottery and matchmaking. In 1867, with the passing of the Workshop Regulation Act, a start was made in regulating conditions 'across the board'. A workshop was defined for the first time, and brought within its scope were great numbers of employees not previously protected. This was because they had operated in an environment that was outside the definition of a factory, such as those working in domestic workshops. The 1867 Act also included those not covered by earlier legislation, such as in large places of work e.g. ironworks and glasshouses. It also abandoned the myth that the only purpose of legislation was to protect children, with adults being theoretically capable of protecting themselves (Hobsbawm, 1969). The daily working hours of women and young persons
were duly limited to 12, while children less than 8 years of age were prohibited from working at all.

By 1876, the difficulties of administering what were often overlapping and contradictory laws led to the setting up of a Royal Commission and to the subsequent consolidating Factory and Workshop Act of 1878. This Act ended the division between the two types of establishment and a general definition of factory premises was made which continued largely unchanged until the major alterations introduced by the Health and Safety at Work etc. Act 1974. The Employers Liability Act of 1880, was a major step forward in the civil law protection afforded to employees. Essentially, a worker might succeed in their claim if they were able to prove that an accident had resulted from a defect in 'the ways, works, machinery or plant'. Alternatively if it could be established that it was a result of the negligence of a person managing or superintending the work. Lord Watson said in Smith v Baker [1891]:

"The main, although not the sole, object of the Act of 1880 was to place masters who do not upon the same footing of responsibility with those who do personally superintend their works and workmen, by making them answerable for the negligence of those persons to whom they entrust the duty of superintendence, as if it were their own. In effecting that object, the Legislature has found it expedient in many instances to enact what were acknowledged principles of the common law."

Thus, the increasing pattern of reform of working conditions, largely inspired by middle-class and working-class support, began to breach the commonly accepted rule that the government should not intervene in conditions of employment. It also signified that the theory of *laissez-faire* was being rejected, at least in respect of the employment of women and children.
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This second phase is characterised by a broadening of the scope of industrial legislation. It now began to encroach into the guarding of machinery and, as such, set the scene for the pattern of industrial safety legislation that was to follow and continue through to the 1970's.

Phase Three

This phase, commencing from the late 1870's, saw the proliferation of detailed and often complex legislation, with safety standards being continuously improved and some attempts being made at consolidation of the earlier piecemeal legislation. The Coal Mines Acts are a example of legislation designed to make work safer and by 1911, safety regulations were extensive. Improvements continued to be made to the working hours of women and children, although legislation regulating the hours of men was not passed until 1908, with the Eight Hours Act, which fixed the working day for miners.

The right to recover damages at common law developed by statute (the Employers Liability Act 1880 referred to above, and the Workman's Compensation Act 1906), requiring the employer to pay compensation to any workman suffering injury or disease resulting from unsafe or unhealthy working conditions. It also progressed by a series of decisions in the House of Lords. In addition, the payment of National Insurance benefits in the event of various work related incidents, and the right of the injured employee to seek damages at common law, significantly improved the previously disadvantaged financial position of the injured employee.

Furthermore, towards the end of the nineteenth century, the setting up of Wages Boards in the major industries had the effect of employers and employees jointly determining wages and working hours. This was an important development when there was no statutory control over the working hours of men.

The changes that had taken place in the fifty years up to 1900 were summarised by Hopkins (1979) who stated that:
“The worker in 1900 was much less likely to be forced to work excessive hours than his predecessor in 1850, simply because standards had been established as to what constituted a fair day’s work; the Factory Acts, the Wages Boards, and the spread of trade unionism had seen to this. Workers might still be dismissed on the spot in a way unthinkable at the present day, but industrial relations had become much more complex, and the ordinary workman, particularly the unskilled or semi-skilled, had much greater protection than he had in 1850 when he was virtually defenceless against an employer who was determined to exploit his labour.”

Legislation to protect railway workers came relatively late, the first being introduced in 1900, with agricultural workers being largely unprotected until the Agriculture (Poisonous Substances) Act 1952, followed shortly afterwards by the Agriculture (Safety, Health and Welfare) Act of 1956. Shop workers hours of work became regulated first in 1886 and a subsequent variety of legislation was consolidated in 1950. The physical conditions in shops were almost unregulated until the Offices, Shops and Railway Premises Act of 1963.

Legislation covering particular hazards and types of occupations continued to be introduced from time to time, such as that relating to offshore installations which were covered by the Mineral Workings (Offshore Installations) Act 1971.

Throughout this period, the development of legislative protection for the employee and legal remedies by which compensation for the negligence of the employer could, with increasing success, be sought in the courts reflected the developing humanitarian conscience of society. Fundamentally, it also reflected the inability of employers to manage the risks inherent within their undertaking, often because they considered safety as being low on their list of management priorities. Undoubtedly, it was also due to their possessing insufficient knowledge to do so effectively. The result was a succession of legislation passed to deal
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with the control of a series of identified workplace hazards. If they applied to the activities of an employer, strict adherence to them was required.

The legacy of this long history of industrialisation (spanning one hundred and fifty years) was that by 1974, employers were imbued with the philosophy that the key to a safe and healthy environment lay in the strict application of the highly prescriptive legislation applicable to their undertaking. Once the legislation had been digested, it was generally a relatively straightforward exercise of putting into practice the specific requirements it contained.

This may be illustrated by a review of a major piece of consolidating legislation introduced before the Health and Safety etc at Work 1974. The Factories Act 1961 (and the Offices Shops and Railway Premises Act 1963) typified the approach to workplace safety existing at that time. An examination of the text of the Factories Act reveals, under fourteen separate parts, a succession of prescriptive requirements demanding little interpretation. The same approach is repeated throughout the Offices, Shops and Railway Premises Act.

In retrospect, it is perhaps surprising that it took until the 1970's for the realisation to exist that a change in legislative direction was required. This change was from one that was based on a highly prescriptive approach, to one requiring the employer to take a holistic view of the problems existing and the manner in which they needed to be addressed.

1974 and Beyond - Phase Four

Since 1974, the fourth phase has seen the shift to a risk assessed approach to the management of workplace safety being imposed on employers. It requires their proactive enactment of risk management and the development of the 'science' of safety, geared towards the efficient management of the risks inherent within their undertakings. For perhaps the majority of employers, it is a process that has increasingly gathered pace during the last twenty-five years.
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The watershed in the process of management being required to take a proactive approach to the means or 'technique' by which effective safety management could be achieved, was the motivating force provided by the Health and Safety at Work Act 1974. In 1970 a Committee of Inquiry, appointed by the Right Honourable Barbara Castle, M.P., who was then Secretary of State for Employment and Productivity, was set up under the Chairmanship of Lord Robens. It is of interest to note that in 1966, he had been chairman of the National Coal Board when the Aberfan disaster occurred: an event that did not generate any subsequent health and safety prosecution. The terms of reference of the Robens Committee were broadly to review the provision made for the safety and health of persons in employment, doing so against a background of a growing discontent with the legislative framework within which safety and health was required to be conducted.

As has already been described, safety requirements were by 1970 contained within numerous enactments. A significant proportion of the working population had no statutory protection, while those who did were not treated consistently. Administration of legislation was diverse and enforcement powers of the inspectorate were considered inadequate. Legislation was not generally directed towards the personal involvement of the worker and some of it was obsolete.

The methodology adopted by the Committee is detailed in the Appendices to the Report (1972). A study of these reveal the Committee's understanding that if organisations were to assume a more active role in accident causation prevention, they would need to ensure that safety and health is "...not only a function of good management but it is, or ought to be, a normal management function - just as production or marketing is a normal function. The effective exercise of this function, as any other, depends upon the application of technique."

The "technique" referred to, implied the need for the adoption of a scientific and systematic approach. Within this would be incorporated the need to plan a comprehensive system of
accident causation prevention, including assessing the causes of accidents and using diagnostic and predictive techniques and preventive procedures. The Committee, therefore, recognised that a major improvement was required in the manner in which employers were managing safety. However, the subsequent Act did not clarify the 'technique', and it has been left to the Health and Safety Commission/Executive, researchers in the safety field, and safety practitioners, to develop relevant management techniques.

The findings of the Robens Committee were presented to Parliament in July 1972 and the subsequent Health and Safety at Work Act 1974 was based largely on its recommendations (Egan, 1979). It addressed the majority of the recommendations made in the Report and brought approximately eight million workers having no previous statutory protection while at work, within the Act. It provided comprehensive protection, requiring the employer to have regard for the health and safety of employees, and also to conduct his undertaking in: "such a way as to ensure, so far as is reasonably practicable, that persons not in his employment who may be affected thereby are not thereby exposed to risks to their health or safety" (s.3).

This duty extended the employers responsibility to the protection of all contractors personnel engaged alongside his own, and to any members of the public who might be endangered by his activities.

The Act moved away from the highly prescriptive nature of previous legislation, to a position in which the employer was required to take all 'reasonably practical' measures to ensure the health, safety and welfare of employees and other persons to whom he owed a duty under Regulations 2 and 3.

Reasonably practicable is a definition recurring in safety legislation. While 'practicable' means that which is feasible or possible, 'reasonably practicable' requires the employer to make a balanced judgement of the expense and other disadvantages of safety measures.
against the magnitude of risks. Over the years, it has been left to the courts to provide a more precise definition. Perhaps the most helpful was given by Asquith LJ, twenty-five years before the passing of the 1974 Act, in the case of Edwards v National Coal Board [1949], when he stated that:

"Reasonably practicable" is a narrower term than "physically possible", and seems to me to imply that a computation must be made by the owner in which the quantum of risk is placed on one scale and the sacrifice involved in the measures necessary for averting the risk (whether in money, time or trouble) is placed on the other, and that, if it be shown that there is a gross disproportion between them - the risk being insignificant in relation to the sacrifice - the defendants discharge the onus on them. Moreover, this computation falls to be made by the owner at a point of time anterior to the accident."

The fact that the computation referred to must be made by the employer at a point before the event occurs places, in the broadest sense, the very clear duty on him to plan activities in advance.

'Reasonably practicable' had a further legal implication under the 1974 Act. Prior to its coming into full force on 1 April 1975, provided there was no provable breach of the Factories Act or of the Offices, Shops and Railway Premises Act, or attendant Regulations, an accident could lead to civil prosecution for negligence but rarely to a criminal prosecution. This situation changed from 1 April 1975 when there was no longer a need to wait for an accident. Failure to provide adequate welfare facilities could result in prosecution and if the accused wished to rely on the defence that it would not have been 'reasonably practicable' to make further provision, the burden of proof would henceforth lie on him (Mitchell, 1975). It added impetus to a process of increasing realisation that if employers were to provide a defence against such a claim, they would need to continually
review the actions taken to ensure that they met this requirement. There was, therefore, a
very real need to plan how safety was being enacted.

Further impetus to improve the management of safety as a result of the 1974 Act came with
the establishment of the Health and Safety Commission and Health and Safety Executive. In
addition, a variety of enforcement inspectorates created at various times by earlier laws
were merged together in the new national law enforcement agency, the Health and Safety
Executive, operating under the Commission. Furthermore, approximately eight million
workers (the remaining 16 million of the workforce being protected by earlier acts and
regulations) having no statutory protection under previous health and safety legislation were
now brought under the Act. The legislation and its enforcement, thereby became a new
reality for many employers. However, the fact remains that twenty-five years after the
passing of the Health and Safety at Work Act 1974, management has still not
comprehensively addressed and achieved effective safety management, as is demonstrated in
current accident statistics and employer prosecutions.

Following the 1974 Act, yet another dimension was added to the nature and requirements
of safety legislation with the United Kingdom’s membership of the European Community in
1973, committing it to the Treaty of Rome and other Community Treaties. However, in
many ways this was to have a more significant impact, and “few can have realised that 20
years later, in the field of health and safety, legislation derived from the latter was to have
a more profound impact than the legislation derived from the former” (Hendy and Ford,
1998). For health and safety, the important point was the amendment of the Treaty of Rome
with the Single European Act of 1986, and the adding of Article 118A which was
specifically concerned with occupational health and safety. In 1989 Article 118A was the
vehicle for the adoption of a Framework Directive on the introduction of measures to
encourage improvements in the safety and health of workers. This was subsequently
introduced as the Management of Health and Safety at Work Regulations 1992, and was
accompanied by the following 'Daughter Directives':
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The core of these (and subsequent regulations) is the duty to assess the risks to the health and safety of employees and anyone who may be affected by the work activity. The assessment to be followed by measures involving “planning, care and information” (Watts, 1994).

The duties imposed under the Risk Assessment requirement of Regulation 3 of the Management of Health and Safety at Work Regulations, are also contained within each of the accompanying five Regulations (collectively under what are known as the "Six Pack" Regulations) and subsequent legislation. They are merely an extension of the 'reasonably practicable' requirement and impose a very clear obligation on the employer to take a proactive approach and to anticipate and manage risks.

It can be identified from the above, that the period of industrialisation, and legislation introduced up to the advent of the Health and Safety at Work Act 1974, placed employers within a legal framework in which safety became closely regulated. However, there existed little guidance on the practicalities of achieving compliance, and because of its fragmented nature, no uniform guidance that could be applied throughout industry. The result of this was that employers had no history of looking holistically at addressing the risks inherent within their undertakings. The 1974 Act and subsequent European Union legislation...
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heralded a new era in the legislative approach to safety and health in the workplace. It demanded risk management based not only on those preventative and protective measures within the bounds of what are 'reasonably practicable', but also to the undertaking of risk assessments and inherently to thereby implement appropriate safety management systems. In doing so it has demanded an increasing level of sophistication in the manner in which safety is managed and developed, and is a process that continues.

2.3 Factors Driving the Need for Health and Safety Development Planning

2.3.1 Introduction

At the end of the 20th Century, what then are the forces driving the need for health and safety change and the development planning which must accompany it if such change is to be successful?

The greater emphasis on management responsibilities has certainly been accompanied by a plethora of guidance identifying how the duties of the employer are to be met. It is principally the Health and Safety Commission/Executive and other specialists who have, during the last twenty-five years, undertaken the process of providing material on the manner in which legislative compliance is best achieved. Organisational 'safety culture' and 'safety management systems', as well as the application of total quality management to health and safety, are just three recent developments in the science of the management of safety. They are now firmly established objectives of any effective management approach to the subject. However, the question remains, at the very core of their existence, is it clear what the planning processes are that are required for their successful introduction into an organisation, and for their development and maintenance?

As has been seen, the risk of civil litigation and potentially extremely high legal costs, as well as the possibility of prosecution by the enforcing authorities, are two of the more
dramatic penalties facing the employer who fails to keep pace with legislative requirements. The need to keep in step with safety requirements and thereby mitigate such possibilities, having grown consistently since 1974, has meant that from that date, for the majority of employers their activities have become increasingly regulated through health and safety legislation, and supporting codes of practice and guidance notes. This is inspite of government deregulation initiatives.

The significance to the employer of Regulation 3, 'Risk assessment', of the Management of Health and Safety at Work Regulations 1992 cannot be over emphasised. Being based on the principle of identifying, assessing and controlling risks, before their manifestation in an accident or incident, risk assessment has now become enshrined as the cornerstone of the effective management of risk. It is a process requiring the on-going review of an organisation's activities and the taking of appropriate action. For many, this has demanded a shift in corporate and individual attitudes to loss prevention. It is a move from one based on a reaction to events, to a proactive approach and the recognition that change, and the need to work and adapt to it, are ever present.

Added to this trend are the demands imposed in meeting non-regulatory health and safety developments such as the concept of the 'safety culture' and safety management systems, as well as financial and quality requirements, each of which are considered below.

2.3.2 Organisational Safety Culture

The definition provided by the Institution of Occupational Safety and Health in its policy statement on health and safety culture (1994) states that it: "... seeks to describe the characteristic shared attitudes, values, beliefs and practices of people at work concerning not only the magnitude of the risks that they may encounter but also the necessity, practicality, and effectiveness of preventative measures."
This is, however, one of a number of definitions that have been applied since the term came into general use in the early 1990's with the Confederation of British Industry publication 'Developing a safety culture' (1990). Also the Advisory Committee on the Safety of Nuclear Installations, Human Factors Study Group Report, 'Organising for safety' (HSC. 1993). All such definitions attempt to describe essentially the same characteristics. This is the manner in which the measures which have been taken to improve safety performance can be seen in the way in which safety is practised by an organisation's personnel, being evident in an identifiable, positive and progressive organisational 'safety culture'. As Davies (1988) put it succinctly:

"Culture provides the framework whereby members may meaningfully interpret actions as being "correct" or "incorrect" in relation to their understanding of the organization. In this way it is a social interpretation rather than an individualistically psychological one. The phrase "We don't do it that way here" is a strong indicator of organizational culture in action."

For those employers who are aware of it, it is the component parts of such a culture to which the definition applies that many now aspire to see in operation within their organisation.

Drawn from the results of 216 questionnaires completed by CBI members, the significance of 'Developing a safety culture' (1990), was that it brought together eleven elements considered to constitute an identifiable safety culture. The importance of each element was already known in its own right at the time of publication. However, when combined under the banner of the ingredients of a safety culture, they assumed a corporate entity with a relevance that could be recognised as generally applicable to, and achievable within, most organisations. The eleven elements were:
Leadership and commitment from the top which is genuine and visible.

Acceptance that is a long term strategy which requires sustained effort and interest.

A policy statement of high expectations and conveying a sense of optimism about what is possible which is supported by adequate codes of practice and safety standards.

Health and safety should be treated as seriously as other corporate aims and properly resourced.

It must be a line management responsibility.

'Ownership' of health and safety must permeate all levels of the workforce. This requires employee involvement, training and communication.

Realistic and achievable targets should be set and performance measured against them.

Incidents should be thoroughly investigated.

Consistency of behaviour against agreed standards should be achieved by auditing and good safety behaviour should be a condition of employment;

Deficiencies revealed by an investigation or audit should be remedied promptly.

Management must receive adequate up-to-date information to be able to assess performance.

The above represent significant, but achievable, basic performance criterion. In 1993, the Advisory Committee on the Safety of Nuclear Installations, Human Factors Study Group, in its Third report: 'Organising for safety', endorsed the above by identifying essentially the same set of characteristics.
2.3.3 Safety Management Systems and Safe Systems of Work

Safety Management Systems

Underpinning the safety culture are safety management systems and safe systems of work. These are the building blocks upon which the success of the safety culture and effective safety management itself will depend. But what exactly are safety management systems? As Waring (1996) has identified "Everyone seems to have their own slant on the subject".

The Oxford English Dictionary (1989) describes a system as "a whole composed of parts in an orderly arrangement according to some scheme or plan". Taking this definition further, the HSE's 'Successful Health and Safety Management' (HSG65), identifies the six elements of an effective safety management system. First published in 1991 and revised in 1997, HSG65 has become the standard reference work for employers undertaking improvements to their management of safety. In doing so, it has also provided further impetus to the concept of the safety culture and to which reference is made on several occasions in its text. In the 'Introduction' to the second edition (HSE, 1997a), it is stated that the guidance it contains is aimed at those at all levels involved with health and safety and that it:

```
"describes the principles and management practices which provide the basis of effective health and safety management;

sets out the issues which need to be addressed; and

can be used for developing improvement programmes, self-audit or self assessment."
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The six elements or safety management systems contributing towards successful health and safety management on which it is based are:
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1 Policy
Effective health and safety policies are considered to set a clear direction for the organisation to follow, demonstrating a commitment to continuous improvement and in which responsibilities to personnel and the environment are met according to legislative requirements. Cost-effective strategies are used as the basis for preserving and developing physical and human resources and reduce financial losses and liabilities.

2 Organising
An effective management structure and arrangements should be put in place to deliver the policy, with staff being motivated and empowered to work safely and protect long-term health. Such arrangements to be underpinned by effective staff involvement and participation and sustained by effective communication and the development of competence which would permit all to make a contribution to the health and safety effort.

3 Planning and implementing
That in place is a planned and systematic approach to implementing the health and safety policy. This to be achieved through an effective health and safety management system in which the aim is to minimise risks. Risk assessment to be used to decide priorities and set objectives for eliminating hazards and reducing risks. Performance standards to be set and used for measuring performance and specific actions identified to promote a safety culture.

4 Measuring performance
Performance to be measured against standards, using self-monitoring techniques to identify when and where improvements are needed. This will look at both hardware and software controls and in the event of their failure, reactive monitoring will discover the causes of such events.
5 Reviewing performance

&

6 Auditing

The organisation learns from experiences and applies the lessons learnt by undertaking systematic reviews of performance. In this way it is in a position to improve on past performance and develop its policies, systems and techniques of risk control.

The document sets out, under the above headings, a framework around which it is recommended that the management of safety should be undertaken. The word 'recommendation' is, however, an over simplification. A major factor in the success of HSG65 is undoubtedly the fact that it now sets the standards against which HSE inspectors are assessing the performance of organisations against the general duties of the Health and Safety at Work Act 1974, and the Management of Health and Safety at Work Regulations 1992, and other legislation. David Eves, Deputy Director General, Health and Safety Executive, stated in the 'Foreword' to the second edition (HSE, 1997a), that: "Together with legal requirements, the framework described here provides the basis for the approach which HSE inspectors take when auditing an organisation's arrangements for managing health and safety." For those who are aware of the existence of HSG65, there is, therefore, a direct relationship between the management of safety in accordance with the material it contains, and the need to be able to demonstrate that compliance with it has been achieved.

Furthermore, British Standard 8800, Guide to Occupational health and safety management systems (BSI, 1996), provides guidelines that are based on the general principles of good management. They are designed to enable the integration of occupational health and safety management to take place within an overall management system. Three possible options are considered which reflect the links between safety, environment and quality to which reference has already been made (p 1-7):
"The first detailed approach, based on HSE guidance Successful Health and Safety Management HS(G)65, is designed for organizations wishing to base their OH&S management system on this approach. An alternative detailed approach has been designed for those organizations wishing to base their OH&S management systems on BS EN ISO 14001, the environmental systems standard, and as such identifies the common areas in both management systems. The guidance presented in each approach is essentially the same, the only significant difference being the order of presentation and either approach may be used to integrate OH&S management within the overall management system. Annex A outlines the links between this guide and BS EN 9001 to assist those organisations operating or planning to operate to the international "Quality Management" systems standard to integrate OH&S into their existing planned management system."

Safe Systems of Work

The employer’s duty to take reasonable care of those to whom he has a legal responsibility requires him to establish and enforce a proper system or method of work (Munkman 1990). An example of this duty can be seen in the case of Wilsons and Clyde Coal Co v English [1938]. A miner was leaving the pit when the haulage plant was activated, crushing the miner against the side of the road by the hutches, before he could reach a place of safety. The employer, who had delegated his duties to a qualified manager, was held liable on the basis that the jury found that it was an unsafe system for the haulage plant to be operated while the morning shift was leaving work. On that basis, it was found that the employer does have the personal duty to ensure a safe system of work and that duty cannot be absolved by delegating it to someone else.

The significance of a 'safe system' is that it emphasises the need for the employer to plan the work in advance having regard for the safety of those involved, and then to put that plan
into practice by relevant safety instructions. To quote Lord Oaksey, from General Cleaning Contractors Ltd v Christmas [1953]: "It is the duty of an employer to give such general safety instructions as a reasonably careful employer who has considered the problem presented by the work would give to his workmen."

Although Section 2., (2)(a), of the Health and Safety at Work Act 1974, requires the employer to provide safe systems of work, it does not define what these are. Earlier legal interpretations were provided such as in the above case. Also, under Regulation 3 of the Management of Health and Safety at Work Regulations 1992, which requires employers to make an assessment of the risks to which their employees are exposed and then establish systems for dealing with them. These have provided some clarification of their meaning.

They are now seen as being fundamental to accident prevention, necessitating the documentation of hazards, precautions and safe working methods, including job training requirements (Bamber, 1994). On the theme of training, where the employer has provided safe plant and machinery and identified the procedures to be followed, Barrett and Howells (1995) summarised its importance to safe systems stating that:

"Safe workplaces are unlikely to be achieved unless those who work there are informed of the need to operate safely, trained to ensure that they know how to operate safely, and monitored to ensure that safe systems are actually being operated. Safe systems depend not only on investing in plant and equipment but also on investing in people."

Safe systems are, therefore, at the very heart of the employer's provision of a safe working environment and will include the following:

Safe premises and plant.

Safe tools and equipment.
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Adequate, competent and effective supervision.
Safe working environment.
Trained and competent staff.
Laid down safety rules and procedures, adequately enforced.
Adequate personal protective equipment provided and used (subject to supervisory inspection).

The employer must, therefore, ensure they are in place, having adequate monitoring arrangements for this purpose. When undertaking accident/incident investigations, perhaps the classic test for the investigator is to question whether the above were present. Where the answer is in the negative, then that is a clear indication of the potential liability position of the employer.

Culture or Systems Change?

Although there is an increasing emphasis on organisational safety culture and safety management systems and safe systems of work, there is often a lack of understanding of the essential differences between them, also how they relate to each other and how they demand different approaches to reach the altered state. 

Culture change is required when there is a need to alter individual ideas, beliefs, values and knowledge, which govern the way in which safety is viewed and practised within a company. It is notoriously difficult to achieve and was described by Deal and Kennedy (1982) in the context of organisational change, as being “a difficult, time-consuming, often gut-wrenching process.” System changes require improvements to, or the introduction of new, individual safety management systems and safe systems of work, and identify the manner in which activities are to be managed and undertaken. Dyer and Dyer (1986) highlighted this essential difference between culture and system when applied to organisational development, although applying equally to safety.
In the context of change, Figure 2.1 represents the differences between the two and illustrates that each operates at essentially different levels.

The safety culture is a reflection of the importance with which safety is managed and undertaken by an organisation's personnel. It was defined by the Advisory Committee on the Safety of Nuclear Installations (HSC, 1993), as:

"the product of people's values and beliefs, their behaviour, and their commitment to your health and safety programmes. This will be evident in people trusting what you have to say, sharing your perceptions of the importance of safety, and having confidence in the effectiveness of your preventative measures".

Both safety management systems and safe systems of work are the direct expression of the extent of the effectiveness with which the 'nuts and bolts' of operational safety are being conducted. We are reminded by Waring (1996), that they provide:

"a structured systematic means for ensuring that both general and particular aspects of what the organization does are effectively managed to meet high standards of safety."

System change or culture change are, therefore, complementary yet very different, with systems assisting to form the character and effectiveness of an organisation's overall safety culture. When identifying where change is required there must be a clear understanding of which of the two are to be addressed. This is necessary because the detailed methods required to change individual attitudes will be very different from those required to change the way in which a specific operation is managed or undertaken. However, for the purposes of this review, the two are to be treated broadly as one. Whether it is with the ultimate
objective of systems or cultural change, the position has been taken that the stages of the change process i.e. identification and implementation of a plan, will be broadly the same.

<table>
<thead>
<tr>
<th>System Change</th>
<th>Culture Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Problem orientated</td>
<td>1 Value orientated</td>
</tr>
<tr>
<td>2 Largely controllable by defined standards</td>
<td>2 Difficult to control unless standards rigidly policed</td>
</tr>
<tr>
<td>3 Involves making incremental changes in systems</td>
<td>3 Involves transforming basic assumptions and beliefs</td>
</tr>
<tr>
<td>4 Based on improving methods and measurable outcomes</td>
<td>4 Based on improving the quality of the organisation’s functional ability</td>
</tr>
<tr>
<td>5 Leadership of change is not essential</td>
<td>5 Leadership of change is essential</td>
</tr>
</tbody>
</table>

Figure 2.1: Differences Between System Change and Culture Change (adapted from a model developed by Dyer and Dyer (1986))

2.3.4 Financial Pressures for Change

Health and safety is often overlooked as having relevance to the hard commercial life of an organisation. However, major disasters such as have been witnessed over the past two decades do serve as a sober reminder of the severe loss of life and finance, which may result from inadequate management attention to the subject of loss prevention. The Piper Alpha explosion involved the loss of 167 lives and an estimated cost of over £2 billion, including £746 million in direct insurance payouts. BP estimate that the 1987 Grangemouth refinery fire which cost one life, cost £50 million in property damage and a further £50 million due to business interruption.

For most employers, the costs of their failures will not result in loss of life. Nevertheless, in the 'Foreword' to the 1997 publication, 'The Costs of Accidents at Work' (HSE, 1997c).
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Frank Davies, Chairman of the Health and Safety Commission, draws attention to the vulnerability of smaller organisations, stating that they: "... have little cushion against accidental losses and a serious accident could put them out of business', while failure to deal with the causes of accidental losses...eats directly into the overall profitability of the company". Such profitability was analysed by the Health and Safety Executive's Accident Prevention Advisory Unit (now the HSE Operations Unit) in 1989. Its findings were reported most recently in ‘The Cost of Accidents at Work’ (HSE, 1997c), from which we learn that detailed studies were carried out on five companies within different sectors of industry. Data was gathered over a number of months on the basis of accidents being defined as: "any unplanned event that resulted in injury or ill health of people, or damage or loss of property, plant, materials or the environment or a loss of business opportunity."

The cost of each accident was then assessed and the following data produced:

* Accidents cost one organisation as much as 37 per cent of its annual profits;

* A second organisation incurred accident losses equivalent to 8.5 per cent of the tender price of a major contract; and

* Accident costs to a third organisation were around 5 per cent of its running costs.

While no participating organisations suffered major or catastrophic losses or fatalities during the study period, the results serve to illustrate that accident costs can be significant to the financial viability of organisations.

Many employers will be persuaded by soundly based financial arguments to improve existing practices. In such cases, the above serve to clarify the good business sense involved in effective safety management. This is illustrated well in the case of insurance premiums
that are an increasing drain on an organisation's financial resources. Employee liability premiums tripled over the five year period leading up to 1996, but as Basil Butler, Managing Director of British Petroleum Co Plc is reported in ‘The Costs of Accidents at Work’ as saying: "We saved £0.75m on insurance premiums through improving our systematic management of health and safety." (HSE, 1997c).

2.3.5 Quality Driven Pressures for Change

In their endeavour to improve business performance many companies have, during the 1990's, undertaken quality improvements, not only within the confines of improving the product at the end of a production line, but by the application of Total Quality Management (TQM), to achieve business excellence throughout their undertaking.

TQM has been defined variously as:

"The way the organisation is managed to achieve business excellence based upon fundamental principles, which will include: customer focus, involvement and empowerment of people and teams, business process management and prevention based systems, continuous improvement." (The European Foundation for Quality Management (1996))

and:

"...a way of managing an organisation so that every job, every process, is carried out right first time and every time. It affects everyone." (The Department of Trade and Industry (1991))

Each definition contains two essential characteristics. Firstly, an emphasis on the primary role of management in leading the organisation towards the achievement of excellence.
Secondly, such excellence being achieved by a combination of factors constituting a collective, quality driven whole.

Oakland (1994) further extended the concept of 'total quality' with its being, "a way of managing to improve the effectiveness, flexibility and competitiveness of an organisation as a whole."

Pressure being applied by purchasers to require suppliers of products or services to adopt similar practices and values as themselves. Also, contractors being required to demonstrate to clients in pre-contract tendering that they are able to perform in accordance with strict legislative and best practice requirements. These are just two instances in which quality can be seen to be of direct relevance to safety. In 'Managing health and safety: an open learning workbook for managers and trainers' (1997d), the Health and Safety Executive draw direct similarities in the way in which health and safety and quality have a relevance to all aspects of the business success of an organisation. Their approach is based on the concept that effective quality management of the process will result in a quality based output, and that: "The two philosophies run parallel to each other and have virtually everything in common."

The following are listed as the ingredients of an integrated approach:

- an approach that designs quality in from the start, so it can be done 'right the first time', rather than identifying faulty products after they have been made;

- involving everyone in managing the quality of what they make or do, spreading ownership universally across the organisation;
- clear and real commitment from the top and appropriate action by senior managers, so that everyone else has good role models and sees policy and culture aligned;

- teams and effective communication, so people can work together and are encouraged to come up with their own ideas to make improvements and solve problems;

- recognition that everyone in an organisation depends on the quality of what their colleagues do. In other words, if someone from another department gives you the wrong specification, you have absolutely no chance of meeting the customer's requirements;

- invest in training and other means of preventing poor quality, therefore, ensuring that the costs of failure are reduced;

- continuous improvement rather than one-off purges, making matters better by setting standards, monitoring performance, identifying where improvements are needed and making those improvements .... then starting the cycle again."

However, the reality is that while TQM and quality generally applied to health and safety are objectives often aspired to and claimed to exist, what is actually happening would appear to be something less impressive. A research study undertaken for the Health and Safety Executive by The European Centre for Total Quality Management (HSE, 1997b) found that of 24 organisations known to be advanced in their use of TQM, its principles were applied less to health and safety management than core business activities. Furthermore, that health and safety management is lagging behind other facets of business
towards quality and that greater integration would be encouraged by more informed application of process management and performance measurement skills and techniques.

2.3.6 General Factors Influencing the Need for Change

Among the more general pressures for change are:

* The meeting of external forces - such as commercial and industry-wide standards, requirements imposed by customers, and changes in technology which demand new or revised products or services.

* Preparing the organisation to be adaptive to the needs of a continually changing commercial environment with the ability to respond quickly and effectively to differing circumstances. In this respect, change programmes must be designed with the express intent of adapting and improving individual and organisational performance with the integration of organisational and individual goals.

* The meeting of internal forces and the needs of internal pressure groups - such as trade union/professional or staff groups.

* The need to keep operating costs as low as is reasonably practicable.

It will be seen from the above that there are numerous pressures for change at work on organisations and employers must constantly review and address them. However, in reality there are many who have not accepted the challenge, not grasped their legislative obligations, or having attempted to do so, found themselves in some difficulty with maintaining improvements. The analysis of development literature and methodologies that
follow is designed to identify how such difficulties can be redressed, specifically in a health and safety setting.

2.4 An Overview of the Theoretical Foundations of Formal Change Models

2.4.1 Introduction

The need for organisations to change is now a general feature of industrial life, and being an integral part of that existence, that which is health and safety related is no exception. Studies by the University of Manchester Institute of Science and Technology (Ezzamel et al, 1994), and the Institute of Management (1995), have identified considerable concern with the process of change itself and dissatisfaction with the outcomes of it. They found that managers' workloads have increased significantly, with one in five working an extra 15 hours a week and thereby being prevented from allocating sufficient time to strategic planning and planning and development issues.

The findings of these studies have important implications for those who have to implement safety improvement programmes. What may already be increased workloads, an inability to allocate sufficient time to planning, and the ever present personal threat and stress created by a changing environment, are likely to result in change (including that which is safety related) being received negatively. As a result, such managers may place safety low on their list of priorities. They may prefer to concentrate on what they consider to be the changes relating to their 'core' management, and possibly more directly significant responsibilities. Furthermore, while most managers will be responsible for the initiation of change at some stage during their careers, all will certainly play an integral role in the achievement of new objectives or the securing of improvements to existing systems. Whichever of the two are undertaken, if their part in the implementation of developments is carried out with reluctance and is based on experience and conjecture, then that is likely to result in the need to reactively deal with the consequences of unplanned developments.
These considerations will need to be borne in mind by those involved in change planning and implementation. They must design into programmes how such issues can be managed in order that, at an individual level, the change process is made less threatening and more relevant and manageable. They must, therefore, identify the full range of personal, as well as organisational problems likely to arise during development. Where difficulties are identified, corrective strategies will need to be developed which establish the manner in which they are to be managed before operational difficulties are created. If undertaken effectively, time spent at this stage should, in the longer term, also result in safety being less onerous and more likely to be accepted as a basic management function.

Both change initiators and those implementing improvements will, therefore, face and must address a range of developmental issues if the process is to succeed. If these personnel are fully aware of the implications of moving to the altered state and the processes for doing so are understood, it should be possible for objectives to be achieved in a competent, efficient and effective manner. However, the reality is that many such initiators are not change strategists (a phenomenon which is not restricted to the safety practitioner). They will have received little or no instruction in preparing for the achievement of specific objectives and, therefore, possess scant understanding of the processes involved, or inherent difficulties associated with the development planning process.

How then to ensure that change can take place successfully?

If there is to be any certainty that key stages will not be omitted, resulting in objectives failing to be attained, then a systematic approach to implementation will be necessary in which are identified both the essential ingredients of change and how they are to be executed (O'Connor, 1993). A development plan must be founded on the commitment to a proactive management approach being underpinned by well-conceived developmental methodology. Systematic investigations and information gathering prior to and during the event, will need to be undertaken to ensure that development proceeds in accordance with a
defined plan. Amendments can then be undertaken where events subsequently identify these as being necessary. Bearing in mind that the able strategist should be considering the practicalities of implementation as the point at which the form of the strategy begins to become evident, then there is a need for clarity of the stages involved and identification of how each may, most effectively, be achieved. Failure to operate in this way, as opposed to a less formal and emergent approach, is likely to result in change being an ever-continuing process. This has been labelled by Blau and Scott (1962), as the 'dialectic process of change', in which one problem solved creates yet new problems. However, as we are reminded by Eccles (1994), there is a lack of information available on implementation and that which does exist is often contradictory.

Laying the groundwork, by effective planning and implementation, are only two of the essential ingredients of change, each of which are inextricably linked. Nevertheless, they are the very essence of success, moving from the existing to the altered state and demonstrating that the initiator has the ability to move the plan away from the concept stage and into the action state. Planning and implementation, while being phases of the overall development process in their own right, must be a consideration, irrespective of whether the development programme is just one, or a series of improvements. Any flaws in each element will quickly become apparent as it comes on stream. On that basis, it is necessary to identify each element of planned change that is required and then to establish the mechanism for planned implementation.

The dilemma facing change initiators, particularly in the safety context where the subject is poorly covered is, therefore, what sources of information are available to assist with the identification of the ingredients of planned change programmes and how they should be implemented. It may at first appear a simple issue of applying the principles contained within HSG65 (HSE, 1997a). However, as has already been identified, that addresses the elements of a safety management system, and is not designed as a guide to their introduction in a planned programme. A model for the introduction of improvements is, therefore, required
which can be applied by designers and initiators to guide them through the stages of the change process, showing precisely the path to be followed. Such an approach is a precursor to traditional safety development methodology in which there exists little reference to such a strategy and in which the emphasis is on what needs to be achieved, at the expense of how it is to be accomplished.

As a guide to the production of such a model, there exist the four possible sources of health and safety, quality, environmental and organisational development information. For each there has evolved often separate, and when compared, at times potentially confusing individual developmental methodologies. A review of all current and superseded Health and Safety Executive publications using the 'Occupational Safety and Health Compact Disc' (HSE, 1999), reveals an absence of such a model, or guidance. In the same way, quality and environmental literature offer little assistance. With a lack of guidance on the implementation of improvements, it may reasonably be assumed that there is no ideal for the manner in which change implementation should take place.

Organisational development literature is, however, significantly more comprehensive and helpful and for this research it was identified as being most appropriate. It has been tested over many years and generally operates at a basic level at which, apart from the expertise of the change agent, supported by a well-briefed change management team, there is not a requirement for extensive experience in the field. The review conducted here searches for that information that is available based on an analytical and systematic approach. This is with the purpose of establishing both the key stages, and the manner in which they will form an integrated and cohesive strategic approach to the planning and implementation of change programmes.

2.4.2 Basic Planned Change Models

What models are, therefore, available to assist with the planning of the introduction of new developments and is the planned approach to change the only viable option?
Safety related change is undertaken with the intention of achieving improved performance, either at a departmental or more general strategic level. Essentially it will be centred on either the construction of new or revision of old working methods, and directed towards the achievement of new or more effective actions.

The planning process will be initiated as a result of the internal and external pressures for change that are recognised to be at work in an organisation. Having identified what needs to change, it will consist of a number of stages directed towards the achievement of the specific aims and objectives. It will be undertaken with the intention of identifying precisely in advance those issues that will have the ability to inhibit development of the programme and thereby permit their removal or management.

The most primitive form of change model is that of a two-phase process of strategy formulation followed by implementation. While this is too simplistic to be of any real practical value, the traditional planning model (Figure 2.2) incorporates the additional stage of design and planning.

![Traditional Planning Model](image)

**Figure 2.2: Traditional Planning Model**

It is the augmentation of the design and planning stage and the incorporation of feedback loops, which bring to life the necessity to introduce, at each distinct point of improvement.
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those modifications demanded by changing circumstances and the experience which is gathered. In this way, the paradigm facilitates the development process taking on a more practical dimension. It is an approach expanded upon by Eccles New Model (1994) (Figure 2.3), which takes the process forward again by a six-stage plan. As well as those elements included in the more basic models, it sets the change process firmly in the context of the external causes that necessitate its taking place. Also, the need to gain their endorsement by the relevant parties before the process commences. With each component also being connected by the inclusion of feedback loops, this paradigm can be seen to begin to have a very real, practical application to the requirement to plan. Furthermore, it illustrates that in having a framework within which the change process is to be undertaken it is also necessary to prepare for the clear delineation of aims and objectives.

Figure 2.3: Eccles ‘New Model’

Taking into account the theoretical considerations underlying change programmes already reviewed, and from the above basic models, the following five critical stages of development emerge:

Stage 1  Identifying the Forces Driving the Need for Change
The practical value of these lies in identifying the basic elements of improvement programmes presented in a simple step-by-step format. Because they do represent change within such a basic framework, if they are to be of any practical value to those charged with the responsibilities of planning or implementing change, then they require significant development.

There follows, therefore, a review of the significant forms of organisational development methodology as they relate to the planning process. Their principles and practices will be considered for the purposes of providing both an understanding of change and an identification of the routes to its successful achievement. From this review it is anticipated that the above stages can be developed into a more meaningful model for the preparation and implementation of health and safety improvement programmes.

Change management, based on organisational development methodology, is centred on the two main approaches of planned and emergent change (Burnes, 1996). Planned change is well established and its advocates would claim that it has been in use successfully for the last fifty years. Emergent change is a relatively new development that, it is argued, is more in tune with the realities of modern change management requirements. As there is significant disagreement on the most appropriate approach, the work of the major contributors to the development of each will be considered before making a decision on the relevant components to be included in a comprehensive health and safety improvement plan.
2.4.3 Planned Change Models

It is generally accepted that the development of change models and techniques emanate from the work of Kurt Lewin who, between 1946 and 1958, developed three highly influential paradigms relating to the planning of organisational development/change (Lewin, 1946, 1951, 1958).

(1) Action Research
First used in 1946, action research is based on the idea that effective problem solving must be based upon a rational, systematic analysis of the issues facing the organisation. To achieve a resolution will involve all relevant personnel in securing information, hypothesis and action. These relevant personnel will consist of three separate groups: the organisation (managers), the subject (those who are from the area in which the change is to take place) and the change agent (being a consultant from either inside or outside the organisation). On that basis, the change process becomes not only a means of securing the altered state, but also a learning situation for each of the above participants.

The process is based on a two-point approach. Firstly, that change requires action. secondly, that there is a recognition that successful action is based on analysing the existing situation correctly, identifying all the possible alternative solutions and choosing the most appropriate way ahead (Bennett, 1983).

(2) The Force Field model
In 1951, Lewin proposed his 'force field' model, in which he described organisations as being systems held in a stable state of 'equilibrium' by equal and opposing forces. On the one hand there exist a range of 'driving forces' or pressures for change, such as commercial competition, new technology and importantly for safety, the demands imposed from outside of the organisation, such as legislative requirements. On the other hand, there are the 'resisting forces' such as the organisation's culture and climate (it now being recognised that
the safety culture is a key indicator of the level of success achieved in managing safety). Each set of forces is considered to cancel out the other, with the system thereby being held in a state of equilibrium. Only by upsetting this balance, can the organisation then be released to attain improvements.

(3) The Three-Step model

Lewin (1958) also recognised that a successful development programme should contain three phases of change based on the social and personal learning processes by which employees need to unlearn old patterns of behaviour and adopt new ones. He considered that it was necessary that this was undertaken within a framework of the recognition of the importance of the subject of the change, those who will have to adopt the change, and their being won over to its successful conclusion.

Commencing with the unfreezing of the existing situation, this would involve management making personnel cognitively and emotionally aware of the need to move away from the old, and to the new way of doing things. Achieved by such means as discussion and briefing groups, these would enable them to appreciate what is in need of change, that a serious problem exists which must be addressed (Bowers et al, 1975), and the consequences of failing to do so. From this information, they are likely to understand and accept the change in terms of what will be changed, how it will be accomplished, when it will occur, and what their role in it will be. As well as achieving a broad acceptance of change, it is likely to engender a positive attitude in terms of what will be expected of the individual and thereby assist them to carry out their role more effectively. Importantly, it should help to reduce any anxiety surrounding the change itself.

Moving, involves the implementation of the change strategy, having first analysed the existing situation, identified alternatives and selected the most appropriate way forward. Based on these findings, it may be structurally, technologically and/or people orientated. A plan of action will be required that details the specific changes to be made, how they will be
implemented, the timetable to be followed, and the role of managers, supervisors, employees and the change agent. Significantly, checks and controls will need to be introduced to ensure that after a short period, and thereafter, the situation does not revert back to the old ways.

Finally, refreezing by managers and supervisors must take place to ensure that new attitudes, skills, knowledge or behavioural patterns are recognised as being important and work. Mechanisms will need to be cultivated to reinforce the new ways, such as the development of organisational culture, policies and practices (Cummings and Huse, 1989).

The Subsequent Development of Planned Change Models

While Lewin's models provide a sound framework for the understanding of organisational change, they are somewhat general in nature and have subsequently been developed by others to broaden their scope and render them more relevant and, therefore, of greater practical value.

In 1980, Huse developed a linear seven-stage process of change based on Lewin's 1958, Three-step model. The real value of the Huse model (Figure 2.4) is that in identifying the stages involved in programme developments, it also conveys their complexity and interrelationships. Most importantly for this research, it also emphasises the significance of planning developments with the identification of action and steps possible to counter resistance to change. However, what it fails to do is signify the negative change intervention factors that will be exerting pressure on improvement programmes. It is not only resistance to change that is a potentially inhibiting factor, but issues such as inadequate resourcing and commitment, and a lack of acceptance of responsibility and ownership. These and other expressions of the lack of a positive commitment will need to be recognised at an early stage, and be managed. Also, the likelihood is that more than one issue will require to be addressed at any time, thereby complicating the process. These features serve as a warning that any such linear presentation has its limitations and must be
Edgar Huse's Seven-Stage Model (1980)  

**Scouting**  
(change agent and client system jointly exploring)

**Entry**  
(development of a mutual contract and mutual expectations)

**Diagnosis**  
(Identification of specific improvement goals)

**Planning**  
(Identification of action and steps possible to counter resistance to change)

**Action**  
(implementation of action steps)

**Stabilisation and evaluation**  
(evaluation to determine success of change and need for further action or termination)

**Termination**  
(leaving the system or stopping one project and beginning another)

**Unfreezing**

**Change**

**Refreezing**

Figure 2.4: *Huse's Model of Planned Change*
planned change. The second are the change processes or methods used to develop it from its existing to projected state.

The four change phases and attendant change processes are:

1. **Exploration phase.** In which the organisation decides whether to make specific changes and commits resources to planning those changes. The change processes are (i) becoming aware of the need for change, (ii) gaining the personnel resources to assist with that process, such as planning and implementing the change, and (iii) defining both the change agent(s) and the organisational arrangements.

2. **Planning phase.** Once the relevant parties have agreed the contract, then identifying and understanding the problems must be undertaken. The change processes are (i) gathering information to establish a correct diagnosis of the problems, (ii) establishing the objectives, and (iii) designing the actions to achieve the objectives being set, and then (iv) getting the key decision-makers to endorse and support the action.

3. **Action phase.** In which the planned change is implemented. The change processes are designed to move the organisation away from the old and to the new state. They will involve (i) establishing arrangements to manage the change process, (ii) gaining support for that, and (iii) evaluating the implementation, and feeding back the results. In this way, it is claimed that any adjustments required can be made.

4. **Integration phase.** Once the changes have been successfully implemented, the position must be consolidated and stabilised in order that the changes become part of the organisation's normal way of operation.
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The change processes are (i) reinforcing the new behaviours through feedback, (ii) gradually decreasing reliance on the change agent and training managers, with employees, to take over the monitoring of the changes, and then (iii) seeking to constantly improve on them.

These change phases and processes bring an immediacy and relevance to this approach. Indeed, Cummings and Huse (1989) consider that this model has broad applicability to most change situations. They believe that it defines the differences in the methods and phases of change, and follows the logical sequential stages that must be undertaken to achieve it successfully. Furthermore, it encompasses the ingredients of the basic planned change models reviewed in Section 2.4.2.

This concept of logical sequential flow adopted by Bullock and Batten (1985), was also developed by Szilagyi and Wallace (1990). Their Planned-Change Model is represented in Figure 2.5 and offers a further variation on the components of change programmes. In their model and the accompanying narrative, the authors identify what they believe to be the stages of a comprehensive programme of planned change. It is based on the presumption that forces for change are continually at work within the organisation and that although the change agent will play a key role, managers rather than external consultants, have the primary responsibility for their management. Also, that there is a recognition that the solution to the difficulties presented by such forces will lie in the development of one or more of structural, technological, task or personnel related issues. Those charged with the task of change management will be required to undertake investigations to establish precisely the problem(s) to be addressed. They will also identify the manner in which it is to be tackled, who are to be the change agent(s), and consider any potential constraints that may exist to development, together with how they are to be controlled.

For the safety practitioner, the Szilagyi and Wallace approach will be seen to have a particular relevance. Even where consultants may be engaged, in most organisations it will
eventually be the safety practitioner who will have the ultimate responsibility for the improvement programme, and for its subsequent development and maintenance. The five key stages of the Szilagyi and Wallace method, which are relevant to the planning and of the introduction of improvements, are:

- **Recognition of Problem Areas**
- **Diagnosis: Programme Goals**
- **The Change Agent**
- **Identification of Constraints**
- **Identification and Selection of an Approach**

On that basis, the safety practitioner will, therefore, be required to develop an understanding of each in order that any initiatives, once embarked upon, can be developed. Furthermore, it is within the **identification and selection of an approach** that there lies the key to planning the successful introduction of improvement programmes.

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**Figure 2.5: Szilagyi & Wallace Planned-Change Model**

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Summary of the Planned Approach to Change

From the above, the planned approach to change may be summarised as being applicable where the opportunity exists for a systematic analysis of the issues facing an organisation to be undertaken and from the data thus gathered, selecting the most appropriate way forward, within given timescales (Lewin, 1946). That direction will require an understanding of the 'driving' and 'resisting' forces (Lewin, 1951) in order that the change can be initiated and driven within the overall pressures existing on the organisation. However, it will not just happen, there must exist the 'tension' within key groups whereby they recognise the need and, are committed to it, and have the full support of a 'prestigious agent' within the organisation to make it happen (Dalton, 1969). It will, furthermore, require gaining the commitment of the organisation's personnel and equipping managers with the skills to ensure that it is sustained (Lewin, 1958).

Planned change is very broadly based on the assumption that organisations operate in a stable and generally predictable environment in which the ability exists to move from one objective to the next. Moreover, that it is managed by a small number of managers at the centre and that there is generally a willingness of personnel to change. Nevertheless, it may also be concluded from the above paradigms, that most organisations will operate in an environment in which the demands for change are likely to be ever present. Also, that its managers will have a responsibility to scan the working environment to establish precisely where the forces for change are at work.

As Bullock and Batten (1985) identified, the above are to be encapsulated within a four stage programme of:

(1) Recognition of the need for change;

(2) Developing a change plan;
(3) Implementation of a plan of action;

(4) Taking appropriate action to ensure that the changes achieved are sustained.

Throughout this staged approach will be present factors having the ability to impede or prohibit the attainment of objectives, these must be identified and managed if programmes are to succeed (Szilagyi and Wallace, 1990). Throughout, change must be managed by the organisation’s managers and steered, at least initially, by a competent change agent. On this basis, the above four points can be developed into a five point action plan:

(1) Managers/change agents identifying the changes necessary

(2) Identifying a course of action

(3) Planning the action and how to deal with issues such as resistance to change

(4) Implementing the action plan

(5) Stabilising and evaluating the plan

2.4.4 Emergent Change

Developing as a significant approach to change during the 1980's, the proponents of emergent change believe that it is more appropriate in a rapidly changing and uncertain business environment (Dawson, 1994; Wilson 1992). For these reasons, they claim that Lewin's models are inappropriate and that they fail to address the continuous demand for employee flexibility and structural change within organisations. Wilson (1992), for example, argues that the laying down of timetables, objectives and detailed methodologies, relies too
closely on managers and their understanding of the intricacies of change processes, rather than opening it up to involve a much wider population.

The emergent approach is based on what is believed to be the developing and unpredictable nature of change that unfolds through the forces at work within the organisation. The adoption of this theory is claimed by many to be less prescriptive and more analytical. It is considered by Dawson (1994) to make it possible to achieve a broader understanding of the problems and practice of managing change in a complex environment, than is possible by following the precise and predictable nature of planned change. Its proponents further argue that there can be no simple, prescriptive approach to managing change successfully owing to the transient, contextual factors at work on the organisation. Neither can it be seen as a rational series of decision-making activities and events, or as single reaction to adverse circumstances. On that basis, successful change is less dependant on detailed plans and projections than on reaching an understanding of the complexity of the issues to be addressed, and identifying the broad range of options available for their rectification.

Health and safety related improvements are invariably necessitated by the need to meet very specific and exacting requirements. Examples would be the those changes demanded by the need to keep in step with legislative requirements, perhaps as a result of non-compliance, or deficiencies which must be addressed in the safety management system which have been highlighted by an accident. It will, therefore, be seen that the precise methodology employed in the planned approach to change has a distinct relevance in meeting these needs.

If it is to be effective, the planning process will be undertaken following a systematic analysis to establish precisely what is required, with account being taken of the driving and inhibiting forces, and the relevant stages to be followed, including the provision of timescales and performance standards. While organisations rarely operate in a stable and generally predictable environment, which is the traditional framework within which the
planned approach is considered to operate, the overriding need to meet exacting requirements renders this a particularly effective approach.

The increasing recognition amongst employers of the complexity of legislation and the need to take a pro-active approach to the management of health and safety to avoid the final penalties was referred to in Chapter One. Because of the developing sophistication in the nature of the subject, it is the safety practitioner (being either the internal safety adviser or external agent) who will be increasingly required to act as the change agent. To perform this task effectively, they will need to be fully trained and conversant in what will be, for most, this new task of planning for the introduction of improvements.

The logical basis for this approach is the belief that change cannot be seen as a series of events within a given time, set in motion to rectify a particular problem. Rather, it is to be viewed as a continuous process in which the organisation is prepared to identify and manage change on a continual basis. In this respect, Dawson (1994) views change as a period of organisational transition characterised by disruption, confusion and unforeseen events that emerge over long periods. Furthermore, even when the change process is in operation, it must be constantly refined and developed if its relevance is to be maintained.

Clarke (1994) considers that mastering change is not a specialist activity driven by experts, but an increasingly important aspect of every manager’s role. To be successful in achieving sustainable change, they will need to be prepared for it. They must have a clear understanding of the environment within which the organisation operates in order that they are able to identify the pressures for change acting upon it. Furthermore, by then putting into effect appropriate internal resources, action can then be taken to manage pressure in a timely and effective way (Mc Calman and Paton, 1992).

It has already been identified that change is a process that is difficult to achieve (Howarth, 1988; Burnes and Weekes, 1989; Cummings and Huse, 1989; Kanter et al. 1992), and
consists of a number of critical stages, each of which must be planned and executed with care. An analysis of both the planned and emergent paradigms refer to the role of the change agent to assist with this process and there is undoubtedly a need for change to be steered by those who are competent in change management skills. As has been seen, the planned approach tends to rely on this agent more than the emergent approach. However, whichever may have been adopted, the need will exist during an organisation's initial change management programme, where the skills have not yet been developed by its own personnel, to steer the development process.

For those advocating the emergent change approach, it is the uncertainty of external pressures acting on the organisation which makes planned change inappropriate and emergent change more relevant. To this end, organisations must scan the external environment to identify and assess the impact of trends and discontinuities (McCalman and Paton 1992). This includes exploring the full range of potential external variables, but is an activity made more difficult by the changing nature of the boundaries within which organisations must operate. Investigations should, therefore, be conducted to promote an extensive knowledge of those factors that can provide a means of managing the difficulties presented.

With external pressures being rapid and complex, the view is held amongst those advocating the emergent approach, that a small group of change initiators in an organisation are unable to comprehensively identify, plan and implement the relevant remedial action. They postulate that responsibility for organisational change needs necessarily to be more devolved, and requires a 'bottom-up' rather than 'top-down' approach to the initiation and implementation of change, in which the responsibility for it becomes very much more devolved. However, to achieve the position of senior managers affecting a situation in which subordinate personnel have the skills to become involved in, and have responsibility for the change process, Wilson (1992) believed that they must transform the way they have traditionally viewed their lead role. Pettigrew and Whipp (1993) consider that achieving
such a difficult task will be dependant on the degree with which they are able to open up their own, and the organisation's, personnel to change. They conclude that there is no absolute manner in which such change can be achieved, but that it does require "linking action by people at all levels of the business."

Summary of the Emergent Approach to Change

Emergent change is, therefore, claimed to operate generally in an environment which is unpredictable, and in which the need for change is continuous. It is, accordingly, considered to be suited to achieving the altered state in the modern, changing life experienced by organisations. Not conceived as a series of events to be achieved within prescribed timescales, but as a continuous process, the necessity for which is recognised and actioned by managers at all levels as part of their normal duties. They are seen as being potentially highly competent individuals who are capable of becoming active change initiators and implementers in their own right. To achieve this position, a move is necessitated away from reliance on the change agent, and to the involvement of a much wider group in the development process.

The key stages of emergent change may be summarised as follows:

1. The approach will be based on a rapidly changing environment.
2. It will place emphasis on the role of employees in achieving change.
3. Change being an ever-present feature of the work environment.
4. Programmes must be flexible enough to cope with the changing environment.
Dawson (1994), summarised the essential differences between the planned and emergent approaches, considering that one dimensional change interventions are likely to generate only short-term results and heighten instability rather than reduce it.

There can be little doubt that most organisations must now operate in an environment that is unpredictable and in which the need for change is always present. However, in most cases, the precise nature of health and safety related improvements that are driven, of necessity, by the very specialist skills of the safety practitioner, must render the emergent approach of extremely limited practical value.

2.4.5 The Role of the Change Agent

As has been referred to above, change programmes require the expertise of an agent (appointed either from within or outside of the organisation) to assist the key members with their design and implementation. Essentially, this will be with the purpose of the introduction of new ideas, approaches and viewpoints, directed towards the solving of what will probably be old problems in new ways (Lovelady, 1984).

Specifically, in terms of organisational development, Buchanan and Boddy (1992) identified that, “the change agent has to support the 'public performance' of rationally considered and logically phased and visibly participative change with 'backstage activity' in the recruitment and maintenance of support and in seeking and blocking resistance”. This to be undertaken “within the complexity and pace in the turbulent context of the modern organization.” They identified the following three levels of competence being required:

1. The content agenda - the project manager being technically competent and experienced with the substance of the changes being implemented.
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2 The control agenda - to be familiar with and competent in the range of planning, scheduling, budgeting, resourcing and monitoring techniques, and with setting and meeting deadlines and targets (which they describe as the "staple fare" of project management).

3 The process agenda - relating to the implementation process, the project manager being competent in communications and consultation, team building, influencing and negotiating skills, and have the ability to manage enthusiasm and resistance.

However, Obeng (1990) argues that four sets of skills are necessary. (1) Planning and controlling the changes (which have long been recognised). Having (2), the Learning skills necessary as the change agent will be working in unfamiliar settings, assimilating new information, and adjusting plans and priorities to meet changing situations. (3) People skills, because of the need to negotiate, influence, listen and manage stakeholders as well as the ability to manage those affected directly and indirectly. Finally (4), the need for organisational skills, in which there is a recognition of the need for political sensitivity, awareness of wider organisational issues, and networking with managers.

The above are necessary in view of change programmes rarely being entirely predictable and, as such, demanding the ability of its key players to recognise and adapt to changing situations. The role of the change agent is, therefore, one necessarily involving diagnostic and judgmental capability with experiential learning being an essential element in the skills-gaining process.

Szilagyi and Wallace (1990) have identified four characteristics which change agents may use when operating for organisations.
Outside-pressure - working outside of the organisation, these will use power tactics to create change such as the pressure exerted by the enforcing authorities.

People-change, the focus of which is on the individual with key approaches being, for example, training and behaviour modification.

Organisational-development, where the focus is on activities dealing with process elements such as group cohesion, problem-solving improvements, and team building.

Analysis-from-the-top, in which in-depth analysis of the organisation's operations identifies for top management, where changes are required and will frequently result in recommendations for structural changes.

Potentially, each of the above may play a role in safety improvements. Outside pressure, usually imposed as a result of an HSE inspection or customer requirements will lead to the necessary adoption of 2, 3 and 4. Without outside pressure, 2, 3 and 4 will be identified by the change agent as playing a role, and then be driven from within.

What then are the qualities and skills required of the change agent in addition to these competencies and use of alternative strategies, bearing in mind that safety related change is likely to be initiated by an organisation’s own safety adviser or external consultant?

Within the safety field, there is no history of the recognition of the organisational development planning processes necessary and, therefore, the skills and qualities required of the change agent. Consequently, there is little guidance available on the subject and it is not generally considered to be amongst the essential skills of the safety practitioner.
The American Society of Safety Engineers (1972) listed what were believed to be the broad range of knowledge and skills demanded of the role of safety practitioner. They considered it necessary to have an understanding of the design, implementation, and measurement of methods and systems that enhance safety performance, while planning the pace and improvement to a level that is adequate to cope with the challenges of the existing and future state. It was, however, acknowledged that it would be difficult to define expertise and competence in these fields. While no specific reference was made to the planning of the implementation of improvement programmes there is, nevertheless, an implied, although indirect need. Had definitions of expertise and competence been provided, they might have clarified this issue.

Booth, Hale and Dawson (1991) presented the core tasks of the safety practitioner for the purpose of evaluating their competency under the Institution of Occupational Safety and Health’s, Register of Safety Practitioners, these being based on a number of different employment contexts. However, the need to be conversant in development planning and implementation skills did not feature in these competencies. This position was briefly considered in British Standard 8800 (BSI, 1996), which discussed at length the need for pro-active health and safety planning. However, it did not adequately differentiate between the planning required to identify precisely what needs to change, and what the components of such change may be, and what planning is necessary to achieve the successful introduction of such improvements. Significantly, it did not elaborate on the role of the safety practitioner in ensuring that the latter is achieved, but rather looked at this in terms of what the organisation as a whole needed to do.

With respect to planning the implementation of safety improvements, there is, therefore, significantly less specific material available on the subject as far as the safety practitioner is concerned, than compared with that which exists in relation to the role of the organisational development change agent.
Under Regulation 6 of the Management of Health and Safety at Work Regulations 1992, employers are required to “… appoint one or more competent persons to assist him in undertaking the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions.” Since such duties will inevitably involve some aspect of the management of change, then the individual(s) engaged should possess the qualities of the change agent. This is on the basis that those who are highly skilled in one activity or domain cannot always transfer that expertise to another domain (Buchanan and Boddy, 1992). Reliance on a change agent skilled in general organisational development practice may not, therefore, be ideally suited to safety related change. Safety practitioners and consultants do need to acquire the skills of the change agent if they are to undertake their duties under the above Regulation 6 in a ‘competent’ and effective manner.

Competence is defined in Regulation 6 of the Management of Health and Safety at Work Regulations 1992 as one who has “… sufficient training and experience or knowledge and other qualities to enable him properly to assist in undertaking the measures …’ necessary’ … to assist him in undertaking the measures he needs to take to comply with the requirements and prohibitions imposed upon him by or under the relevant statutory provisions.”

While not conceived specifically in the context of organisational change, this definition adequately describes the core qualities required of the agent in a safety context. It may be change conceived on a purely planned basis, or that based on the first stages of an emergent approach directed towards preparing internal personnel to take over the change process. In either case, an agent will be required to guide the organisation through the stages involved, and provide the training necessary for its execution and subsequent development.

Two recruitment options are available for the organisation undertaking a programme of change. The first is to employ a consultant, and arising from the initial development
experience, identify a member of staff who will be closely involved in it and ultimately take over change management projects (supplemented by formal training). The second is to either recruit, or have trained, a member of staff who will have the responsibility for leading or advising the project management team, on subsequent projects.

Where there is a recognition that change must take place in the management of accident causation prevention, it will, therefore, be seen that a lack of awareness of the qualities required to guide that process, and of the techniques necessary, are likely to present difficulties during the development process. In the safety field, identifying a competent change agent or consultant having the necessary broad-based, but specific health and safety knowledge and change management skills may, therefore, be difficult.

The Health and Safety Executive publication, 'Selecting a Health and Safety Consultancy' (1992), was produced to assist employers to select an external change agent that is competent to advise about health and safety. It covers a broad range of issues such as when to use a consultancy, what it can do, how to select the right one and from which sources. It provides advice on how to judge performance and the importance of ensuring that action continues to be taken after the consultant has left the organisation. However, it fails to raise awareness on the part of the employer of the implications of undertaking safety improvements and that they will have change implications. Neither does it give advice on the qualifications or experience required of the consultant in advising on such issues.

For these reasons, the appointment of a change agent will need to be undertaken with extreme care. For health and safety change, they must be experienced in that field and possess the organisational skills already reviewed. It will be a critical appointment: diagnosing the problems and recommending the appropriate action are the essence of successful change. If these are incorrectly diagnosed it may result in the organisation commencing down an incorrect path of intervention for change (King and Anderson, 1995).
2.5 The Development of a Comprehensive Model of Planned Change

2.5.1 Introduction

From the material already covered, it can be concluded that if change is to take place successfully, it is not a process to be undertaken without knowledge and experience of the methodologies and practices on which the discipline of organisational development has been built. These are the qualities that the competent change agent should bring to the achievement of objectives, whether appointed from within or outside of the organisation. A number of conclusions may now be drawn on the content of such programmes. These are reviewed below and will be supplemented with relevant supporting material before proceeding to define the stages of a comprehensive model of planned change.

If it is to be of any practical value, a development model will possess a clarity by which those charged with responsibilities for its execution will have confidence in it, being able to recognise it as being appropriate to the organisation's needs and, importantly for them, be workable. It must also comprehensively cover the elements of the planned and emergent approaches that are relevant to the modern working environment, and be applicable to a wide range of industrial activities and company size ranges. It may be argued that none of the approaches already reviewed individually meet the former criteria, neither do they represent the planning process in its entirety, or in such a way that those with a limited understanding of developmental principles, may be able to effectively put them it into practice.

Ideally, the initial stage of a programme would be to establish if the organisation is ready for change. That would be the first step in a continuation of the developmental approach to planned change in which decisions build one on the other with past decisions moulding future strategy. Johnson (1992) advocates this approach arguing that it provides the means of coping with the uncertainties that go with change "so that new ideas and experiments..."
can be tested and commitment within the organization can be achieved whilst maintaining continual, if low scale change.” However, organisations are driven by market and other forces and if they are to survive they need to be financially and operationally effective and, therefore, constantly involved in the process of setting up working methods to meet changing circumstances (Hannigan, 1995).

The pressures to achieve the effective operation of safety are no less demanding than are other forms of change, all of which will take time to achieve. The HSE have commented that “A message which emerged from HSE contact with organisations is that implementing an effective health and safety management system takes time. Two to five years is typical” (HSE, 1997a). While this is a reference to the achievement of major strategic change, whether it is on such a scale, or more modest short-term change, the commitment of senior organisational personnel must exist to achieving the objectives. This will be within realistic and at times (in the case of small-scale change), relatively short-term timescales, not those which may be 'comfortable' and, therefore, less demanding.

An analysis of the eleven elements of the safety culture identified by the Confederation of British Industry (1990) clarify the importance of both the commitment of the chief executive and the need for objectives to be attained within identified timescales. There is, therefore, no place for lip service to the change process and commitment must follow through to executives recognising the change as being as applicable to themselves as it is to subordinate staff. This approach can be exemplified by executives taking part in the development programme, thereby encouraging all within the organisation to participate in the learning and developmental role. With objectives having been identified, they should lead the change, and in doing so demonstrate that priority has been assigned to the tasks ahead, irrespective of other demands on their time.

For the reasons already identified in Section 2.3, change will normally emanate from senior management, particularly during the identification and planning phases. In the unilateral
situation (planned) it will be made and imposed from above. In the delegated situation (emergent) it will depend on the knowledge and skill of lower level managers: those who are to plan and put their decisions into practice. The more realistic approach will be for both planned and emergent methodology to be brought together, to then review and make an informed decision on the abilities and skills of subordinates, followed by determining where power distribution should lie.

Greiner (1967) encapsulated these possibilities in a three-point approach to the use of power, based on:

(i) **Unilateral Power** - in which change is imposed from above and subordinates have little or no influence, it being achieved by *decree*, *replacement* and *by structure*.

(ii) **Shared Power** - in which change is brought about by the *group discussion* and, therefore, involvement of subordinate personnel.

(iii) **Delegated Power** - in which subordinates actively participate in each stage of the change programme and in which case discussion groups and sensitivity-training groups play a key role in their involvement.

If effective accident causation prevention is to be achieved, a comprehensive approach requires the adoption of an holistic view of the problems and opportunities to be addressed. Once identified, these will form the basis upon which improvements are to be undertaken. In line with the work carried out by Killman (1989), a fully integrated approach should include many different possibilities for attaining improvements on what he calls the 'leverage points'. These are intended to secure improvements in individual, group and organisational behaviour. In this way, should one approach fail, then others are available. Furthermore,
different techniques, instruments, and procedures for doing so can be undertaken, under the influential headings of culture, management skills, team building, strategy, and reward.

Following this, the next stage will be to specify how systems change is to be managed. In accordance with Killman's approach, this would be undertaken by looking at the organisation holistically (Stage 1), diagnosing the problems (Stage 2), and addressing the problems within the ongoing stages of planned change (Stage 3). In this way it is claimed that it will then be possible for the need for continuous change to become ingrained in the organisation and acted upon. Successful safety management, in the same way as successful organisational change, will then become manageable.

These stages of planned change will be developed to be undertaken as a recurring cycle of events and in the planning stages, sufficient time and resources must be allocated to facilitate each stage. Importantly, movement from one stage to the next should not take place until all requirements of the earlier stages have been met. The rationale for this approach is that failure to build on improvements incrementally will result in difficulties needing to be addressed later. However, as the process is continuous, if executed effectively, subsequent cycles should be less onerous, both in terms of actually operating the new or revised procedures, and in the range of issues needing to be tackled at a later date.

Furthermore, Leavitt (1964) applied this developmental approach to his recognition that change would incorporate one or more of the following design possibilities, each of which will interact with and influence the next. The design may be:

(i) **Structurally based** - in which change is introduced through formal guidelines, procedures and policies.

(ii) **Technologically based** - in which the approach is based on the rearrangement of workflow.

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(iii) **Task orientated** - focusing on the job performed by the individual.

(iv) **People focused** - in which the emphasis is on the modification of attitudes, motivation and behavioural skills.

Taking into account the above considerations, if they are to have any practical value they must be incorporated into a model of change into which is also included the main elements which emerge from the *basic change, planned and emergent change* models. Figure 2.6 reflects these considerations, from which has been extracted the essential components of change programmes that are identified in Column 4, to form an integrated model of change.

The significance of Figure 2.6 is that from it can be developed a paradigm that encompasses all the relevant aspects of development that have already been considered under the four headings (and their relevant sub-headings) of:

1. *Exploration*
2. *Planning*
3. *Action*
4. *Integration*

Within this approach to change each of the main and sub-components are intended to apply equally in periods of both stability and transition, when change is necessary to keep in step with normal developments, as well as periods of upheaval. Furthermore, as the model incorporates both the planned and emergent approaches, it can be relevant at different stages of an organisation's development. *Firstly*, the core aspects of the planned approach will be particularly appropriate when initially undertaking a major change project involving
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<td></td>
<td>* Adjusting the plan as demanded by changing circumstances</td>
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<td></td>
<td>Stage 4 - The Integration Phase</td>
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<td></td>
<td></td>
<td></td>
<td>* Reinforcing the new behaviour</td>
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<td></td>
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<td>* Evaluating the success of the plan</td>
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<td></td>
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<td></td>
<td>Stages 1-4 - Conducted in an Environment in which</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>* There is a recognition that change is a constant feature of the working environment</td>
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<td></td>
<td></td>
<td></td>
<td>* Change strategies must be flexible enough to cope with unexpected change factors arising</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>* Change strategies must include the widest possible organisational population and be based on key personnel acting as the change agent(s) from the earliest opportunity</td>
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</tbody>
</table>

Figure 2.6: The Development of the Components of an Integrated Model of Health and Safety Change
safety culture and/or significant safety management system innovations improvements. This is because it will need to be undertaken according to a plan, in a systematic and methodological manner under strictly controlled conditions, and will involve all key personnel working with, and learning from, the change agent. Secondly, when there is a recognition that change presents an opportunity for an organisation to learn both how the attainment of the immediate objective(s) is to be achieved, and how relevant personnel may be equipped with the skills to undertake longer-term, ad-hoc change, then significant developmental opportunities are opened up.

Working with the change agent to acquire the skills necessary to take over the maintenance of the initial project, key personnel may then be developed to the extent necessary to undertake new project developments, and their maintenance. This will need to be supported by diagnosis to identify the full range of problems that the organisation must address and the possible constraints that may exist to the successful introduction of remedial action, undertaken by competent personnel. The challenge facing such managers, trained in the first instance by the competent change agent, is therefore, to achieve a comprehensive programme for improving health and safety performance. This has been summarised by Kilmann (1989) as requiring them to identify at least three sets of elements:

1. The controllable variables that will determine the success of change programmes.
2. The various approaches such as techniques and procedures that may alter the controllable variables.
3. Those activities that drive organisation-wide change.

To achieve these objectives, awareness must be raised of the need for change amongst a much wider group than those who need to be immediately involved. In this way, all such personnel will then be drawn into the improvement process, being made aware of the need to search for the pressures for change at work on the organisation, assisting with identifying
precisely what needs to change and then with defining how that is to be achieved. Change will then be the delegated responsibility of a broad range of personnel and not left to the few.

Change plans will, furthermore, need to be designed to be flexible enough to be receptive to changing external factors, rather than based on the premise that once set, they will not be subject to external change influences. As Dunphy and Stace (1993) have stated, the way forward requires "...a model of change that is essentially 'situational' or 'contingency model', one that indicates how to vary strategies to achieve 'optimum fit' with the changing environment." In this respect, both planned and emergent change approaches can be seen to merge.

It is now difficult to conceive of any successful development programme conducted in an environment that is not changing and which, as well as the change agent and change management team, personnel at all levels will not be involved. Furthermore, as has already been identified, because of the rapidly changing commercial environment in which organisations must now operate, there is a recognition that the need for change is ever present and that within the planning and implementation processes, programmes must be flexible enough to cope with that.

The logical development of the paradigms that have been reviewed, and the supporting material, is that the accomplishment of change will be achieved by a series of detailed planned steps or stages. In this respect, Szilagyi and Wallace (1990) identified that:

"Each stage has necessary conditions for moving into subsequent stages. Omission of one stage makes it difficult to continue forward effectively. When those implementing change overlook early steps, they often find themselves perplexed by unanticipated resistance or poor results."
common response is to push the change more intensely and to force people to accept it, despite their frustration and disagreement.”

On that basis, taking into account the theoretical foundations of change reviewed earlier, and the 'Development of the Components of an Integrated Model of Change' shown in Figure 2.6, these can now be drawn together into a comprehensive model of change. It will include the identification of the stages involved that are applicable to both major strategic and low-scale, change.

2.5.2 The Stages of a Comprehensive Model of Planned Change

For those who are aware of their existence, the array of developmental models available and the added complication of the planned and emergent approaches to be considered, requires them to make an informed decision on the most appropriate methodology to be employed. For those who have no knowledge of such information, they will either proceed unprepared or engage the services of a change agent.

From the review of the literature conducted above, the author has taken the view that if there is to be a real prospect of success, across a wide range of company activities and sizes, then the methodology must be as simple as possible. This is necessary in view of the varying capabilities of those planning and initiating change (including those of safety practitioner change agents).

Annex C. Planning and implementing, of British Standard 8800 (BSI, 1996), offers a procedure to “plan and implement OH&S organizational change.” This procedure is represented in Figure 1.1 (p. 1 – 6), and is based on a traditional strategy of the preparation of a plan to achieve key objectives, the drawing up of targets and selection of outcome indicators. In terms of health and safety material dedicated to the subject of planning, BS 8800 undoubtedly offers detailed and positive advice and assistance on development planning. However, being largely centred on these three features, it is restricted in nature.
The four headings of the Bullock and Batten (1985) *Four Phase Model* reviewed earlier, provide a framework for planning the implementation of the process of change. Their outline, together with other principal development methodology reviewed above, has been adapted by the author to provide the basis of a model of change designed specifically for planning the implementation of health and safety improvements, the principal stages of which were seen in Figure 2.6. These main stages have been further developed and are now encompassed within the author’s *Integrated Model of Change* (Figure 2.7). Its main and

<table>
<thead>
<tr>
<th>Stage 1</th>
<th>The Exploration Phase (Section 2.5.3)</th>
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<tr>
<td></td>
<td>Recognising the Forces for Change at Work on the Organisation</td>
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<td></td>
<td>and Diagnosing the Issues to be Addressed</td>
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<td></td>
<td>Selecting a Change Agent</td>
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<td></td>
<td>The Role of Auditing</td>
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<tr>
<th>Stage 2</th>
<th>The Planning Phase (Section 2.5.4)</th>
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<tr>
<td></td>
<td>The Allocation of Resources</td>
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<td></td>
<td>Designing the Change Strategy</td>
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<td></td>
<td>Identifying the Potential Constraints on Change Programmes</td>
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<td></td>
<td>Problem Solving</td>
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<td></td>
<td>Gaining Support for the Initiative</td>
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<td></td>
<td>Identifying the Management Arrangements</td>
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<td>Performance Standards and Associated Timescales</td>
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<th>Stage 3</th>
<th>The Action Phase (Section 2.5.5)</th>
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<td>Implementing the Action Plan</td>
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<td></td>
<td>Evaluating the Implementation Process and Making Necessary Adjustments</td>
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<tr>
<th>Stage 4</th>
<th>The Integration Phase (Section 2.5.6)</th>
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<td></td>
<td>Reinforcing the New Behaviour</td>
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<td></td>
<td>Decreasing Reliance on the Change Agent</td>
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<td></td>
<td>Passing on Successful Change Throughout the Organisation</td>
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<td></td>
<td>Training Managers and Staff to Monitor the Changes while Seeking to Improve Them</td>
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**Figure 2.7: The Integrated Model of Change**
supporting sub-elements are analysed below to demonstrate the significance of each to a comprehensively planned development programme. While incorporating the most appropriate elements of planned change, significant aspects have also been drawn from the numerous change methodologies considered earlier.

2.5.3 The Exploration Phase

Introduction

The process of change will commence with the recognition that there is a need to alter some aspect of a company's activities. This may be either at an immediate operational level, such as the refinement of an existing safety management system to cater for the detailed requirements imposed by new legislation. Alternatively, it may be at a more strategic level where, for example, it is recognised that there is a need to undertake major change to an organisation's safety culture.

It is unlikely that the need for change will arise without warning. The earlier the need is recognised, the longer will be the period available to plan, organise and implement the change. For this reason, a broad range of the organisation's personnel, not just its senior managers (in line with the emergent approach to change), should be prepared to recognise the 'change-need indicators'. Time spent here will diagnose the issues to be addressed and will be gathered from the information that is flowing into, around, and out of the organisation.

When these change-need indicators signify that action is required, then a decision will be required on who has the experience and expertise available to guide and assist the organisation through the change process.
The Exploration Phase provides the point from which the subsequent Planning, Action, and Integration phases may be undertaken. It is, therefore, the first of the four phases which, with their respective sub-elements, are designed to flow one into the other, thereby providing an integrated whole. It will consist of the following three key stages:

1. Recognising the Forces for Change at Work on the Organisation and Diagnosing the Issues to be Addressed

2. Selecting the Change Agent

3. The Role of Auditing

**Recognising the Forces for Change at Work on the Organisation and Diagnosing the Issues to be Addressed**

The forces for change exerted on an organisation have been reviewed in Section 2.3. Nevertheless, where individuals have been charged with the responsibility for their early recognition, and the planning and implementation of remedial action, they must be thoroughly familiar with such potential driving forces. In this way, as already stated, the development process can be initiated before outside events overtake any action being considered.

Recognition of the pressures necessitating change and the identification of the specific issues to be addressed will define the nature of the improvements required. Wilson (1992) has identified four levels of change. These are represented in Figure 2.8, and he draws attention to the need to establish which is/are applicable before proceeding. For the purposes of this research, safety related change has the potential to involve change at levels 3: evolutionary transition (involving retention of existing structures and technology), and potentially level 4: revolutionary transformation (in which the change involves redefining the existing...
parameters, where structures and technology are likely to change). Essentially these are strategic changes in nature and require a transition or shift in existing ways of operation. There is, therefore, the very real potential for employee anxiety to be raised which will need to be taken into account in the overall development plan. Failure to do so can create areas of resistance, as can the magnitude of the change and the change itself.

<table>
<thead>
<tr>
<th>Degree of Change</th>
<th>Operational/Strategic Level</th>
<th>Characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Status quo</td>
<td>1 Can be both operational and strategic</td>
<td>No change in current practice</td>
</tr>
<tr>
<td>Expanded reproduction</td>
<td>2 Mainly operational</td>
<td>Change involves producing more of the same (goods or services)</td>
</tr>
<tr>
<td>Evolutionary transition</td>
<td>3 Mainly strategic</td>
<td>Change occurs within existing parameters of the organization (e.g. change, but retain existing)</td>
</tr>
<tr>
<td>Revolutionary transformation</td>
<td>4 Predominantly strategic</td>
<td>Change involves shifting or redefining existing parameters. For example, structure and technology likely to change.</td>
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</tbody>
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Figure 2.8: Wilson’s Levels of organisational change, classified by degree of change

To implement change in a rigid and bureaucratically operative organisation, in which individuals are used to operating under strictly controlled conditions, calls for a strategy that is compatible with that structure. On the other hand, implementing change which requires individual initiative and which fails to take account of that culture, is likely to result in failure.
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The Change Agent

The role of the change agent has been reviewed in Section 2.4.5. In the safety context, as with that of general organisational development, it is at this point of the exploration phase that the appointment of a change agent will need to be addressed. Having recognised that the organisation must adapt to changing circumstances, if it is to do so effectively, the actual process will need to be steered by the appointment of a change agent, possessing the necessary change management skills and experience. If left too late, it is likely that the individual will be unable to use their skills to influence the change process in the most effective manner.

Where lack of expertise within the organisation makes it necessary for an outside appointment to be made, there should be a recognition that this is the opportunity to train a member of the organisation's own personnel in change management skills. Where the organisation's own senior personnel fail to do so, then it is a responsibility of the change agent. Early in the appointment an understudy should, therefore, work closely with the agent.

The Role of Auditing

Recognition of the forces for change at work on the organisation is unlikely to be achieved by informal means such as reviewing on an ad-hoc basis, what is happening within it, and questioning whether, for example, legislative requirements are being met. Both represent a 'hit and miss' approach and are likely to result in key problem areas being missed. Specifically, as far as safety is concerned, it will involve the individual designated with health and safety responsibilities (adviser, consultant, or member of staff having specific safety-related duties), identifying changes in legislation or best practice requirements. However, that is only the tip of the iceberg and the undertaking of formal reviews to examine and test the existing state of the organisation's safety management systems and safety culture, will be
required on an on-going basis. As Cooper (1997) has described, "any management system audit should be able to identify, assess and evaluate the organisation's problems so that recommendations for improvements can be made."

The traditional safety audit will include a review of the state of health of the safety management systems, the design and implementation of which received guidance in HSG65. It will also cover the conditions prevailing in the physical environment, many of the standards for which were consolidated from earlier legislation in the Workplace (Health, Safety and Welfare) Regulations 1992, and many more of which will be set within organisations themselves. In view of the range and complexity of the subjects to be covered by both systems and physical environment audits, it would be unwise for these to be undertaken by untrained personnel. Waring (1996) believes that "Internal auditors should have at least 5 years' experience in the particular industry or an allied industry, including at least 3 years' experience with the particular organization." While it would be entirely appropriate in, for example, the offshore and chemical industries, to lay down such lengthy minimum experience requirements, that would be unrealistic for the majority of companies. The Health and Safety Executive recognise this and are not as specific, considering that internal auditors need to be suitably qualified and experienced, with audits conducted by competent personnel, often independent of the area of activities being reviewed (HSE, 1997a). This opens up the field to those who have an interest in safety, have relevant experience and are trained in the application of the audit technique to be used.

Proprietary systems offer the best means forward for the less experienced and where strategic change is envisaged or may result, it is essential that the audit covers both of the above, identifying accurately the current state of the management of safety and how that is reflected throughout the organisation. There exist a number of propriety systems for this purpose, including the International Safety Rating System produced by the International Loss Control Institute and available to trained and accredited auditors. Also, the Complete Health and Safety Evaluation (Chase, 1987). CHASE 1 is available for the small firm (less
than 100 employees), and CHASE II for larger organisations. There are also specialised audit packages for specific industries such as the *Profile for Windows Audit Package*, developed for higher education by the Universities Safety Association (1994).

Although it may be covered by the audit, accident and incident investigations deserve mention in their own right. Accident prevention is at the very heart of the effective management of safety and is, indeed, what an identifiable safety culture and safety management systems are intended to achieve. Accident and incident investigations need to be undertaken to the highest standards, with the intent of establishing what happened and the taking of remedial action to prevent a recurrence of the event. Where that is not appropriate, to gather sufficient data to enable meaningful conclusions to be drawn and 'patterns' to be identified which can then be used as the basis upon which improvements to systems may be made. The audit must, therefore, establish the effectiveness with which investigations are undertaken and where improvements may be required.

There has long been recognised an association between the effectiveness with which safety is managed and the overall success of organisations. In 1988, the Accident Prevention Advisory Unit, of the Health and Safety Executive, commented on this stating that *'It is no accident that the firms with the best safety records in the UK are often numbered amongst the most profitable.'* This suggested link has continued to be developed (HSC, 1993 and HSE, 1997a). It is, therefore, essential that preliminary auditing of the organisation's safety culture is undertaken, and that this is up-dated by reviews, to establish the state of developments and improvements. The procedures for such auditing are less well defined than are those for reviewing compliance with the physical environment and safety management systems. Nevertheless, the eleven elements of a safety culture identified by the Confederation of British Industry (1990), and the elements contained within the *'Third report: Organising for safety'*, produced by the Advisory Committee on the Safety of Nuclear Installations (HSC, 1993), provide standards against which progress towards the establishment of the safety culture, can be measured.
2.5.4 The Planning Phase

Introduction

As already discussed, the planning stage of an initiative will hold the key to its eventual success or failure. It will require a strategy that identifies, in a staged approach, how the issues requiring attention are to be managed and what resources are required for their successful achievement. To be incorporated throughout a comprehensive change strategy, will be the critical issue of identifying the potential constraints on the change programme. Unless addressed, such issues are likely to result in serious, if not fatal, obstructions and deviations from the originally conceived plan. The support of both senior management (who will be required to endorse and fund the plan) will be required, as well as the identification of line and other management responsibilities and operational arrangements, whereby such personnel take on key roles during, and after the development process. Throughout will be the need to set the performance standards and timescales within which each part of the plan is to be undertaken and completed.

Brown and Jopling (1994) have identified that writers of the 1980's and 1990's see the essential ingredient of a change strategy as basically focusing on issues mainly to do with the development of core competencies. Once acquired, it is with these that personnel should be able to successfully manage change. Included within this are the planning stages, as they will show, once the change programme is underway, the level of competence of its initiators and whether the plan has been developed to the extent necessary for its successful execution.

The planning stage of change programmes is, therefore, the point at which the identification of the strategy determines the success of the initiative. Drennan (1992), in observing the success with which the Japanese have managed change comments:
“It surely deserves a few months to plan your long-term future. That planning phase is something the Japanese take great care over. One of the British managers at Sumitomo said: 'The Japanese don't rush into things. They don't want to be associated with failure, so they take time to make sure everybody is on board before they start. They plan for the long-term interest of the business. Then they pay attention to the detail, to make sure they get things right.”

While the change referred to is not specifically safety related, this approach encapsulates the essential ingredients of any successful plan. That is, it is with the objective of achieving long-term change and does, therefore, need to be taken great care over. It should bring all relevant personnel along with it, being based on attention to the detailed elements of the process necessary to achieve it.

In HSE Contract Research Report 'Business re-engineering and health and safety management: best practice model' (1996), the significance of planning in relation to organisational change was noted in that:

“Clearly the state of the art in health and safety management and the demands placed on health and safety will change over time. But, whatever the exact issues and strategies may be, the value of a proactive strategy of assessment and advanced planning is only likely to increase, especially in organisations experiencing rapid or continuous change. Thus, each reorganisation project should be considered in its right, using the guidance given here to manage the organisation specific issues.” (HSE, 1996)

Whether it is change to improve one aspect of health and safety performance, planned change as part of an improvement process, or change demanded as a result of company
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reorganisation, there is no universally recognised set of stages involved. From an analysis of
the literature on the subject, the author has, therefore, developed the following six-point
programme:

1 Allocating Essential Resources.
2 Designing the Change Strategy.
3 Identifying Potential Constraints on the Change Programme.
4 Gaining Support for the Initiative.
5 Identifying the Management Arrangements.
6 The Importance of Timescales and Performance Standards.

The detail of each of these will now be reviewed.

The Allocation of Resources

Commencing before a programme is even formulated, a commitment is required to establish
if the organisation is prepared to allocate the resources necessary for its execution by the
appointment of an internal or external change agent. Once a diagnosis of the issues to be
addressed has been made, then the change agent together with other key personnel must
address the question of resources. A calculation of projected resources required will be
undertaken with the objective of establishing if the organisation is fully prepared to
committing them. Faced with hard commercial facts that may not be realisable, it will be
managerially more expedient to defer a development programme at this stage, than to
commence and realise later that adequate resources are not available.
The need for the allocation of resources to risk management projects is well documented by the Health and Safety Executive, and it for the organisation to analyse and assess those required for specific initiatives. They will, however be either:

Direct Costs
Being the salary associated with the engagement of the change agent, irrespective of whether that is an internal or external appointment (full or part time). secretarial support and the time of other relevant personnel.

Indirect Costs
Will involve the time to be taken on the project by other company personnel such as the immediate support team, and those who will be putting the change into practice. The critical issue is likely to be whether individuals will have sufficient time to allocate to the tasks ahead, there being no point in proceeding if there is no way that the additional workload generated will be manageable.

Designing the Change Strategy

Having developed the means for recognising the forces for change at work on the organisation and identified where specific improvements are required, the change strategy will then be formulated around which remedial action can be undertaken. In the case of major change, this is the point at which the strategic plan takes on a form that will shape the direction and success of the change programme.

There will exist a number of possibilities for change programmes. They may involve modest incremental changes by the refinement of existing practices, may require the rectification of identified failures, or transform the manner in which safety is currently managed and thereby take on the form of major strategic change. The work undertaken
to diagnose the issues to be addressed (p. 2 - 85) will dictate the actual level of change to be undertaken.

**Identifying the Potential Constraints on Change Programmes**

Once a diagnosis of the issues to be addressed has been undertaken, resources allocated to their resolution, and the change strategy identified, it will be necessary to establish how those issues that would otherwise remain unanticipated and thereby present the potential to inhibit successful change, can be recognised and subsequently managed.

The role of managers in identifying the forces for change at work on the organisation has already been considered. Prepared by the change agent to do so, they should now be in the position to be able to identify and address problems before they have the ability to impede the development process. As an incentive, and in preparation for this role, they should have been given an understanding of the full range of opportunities that exist for success at both an organisational and personal level. In this way, the development process may be seen as one with a positive end, not just one in which individuals are merely seen as a means of achieving an altered state.

However, a thorough review of the literature (including that produced by the Health and Safety Commission and Executive) reveals that identifying potential problems before they become a threat to the achievement of objectives, is little recognised as a tool in the change process. The resultant lack of material has meant that for those who are aware that it is a subject to be taken into account, then they must do so by developing their own strategies.

At an organisational level, problems may arise in those factors that direct the form in which safety is managed. Is there an effective health and safety policy, is it meaningful, do personnel act upon it, does it contain any vision of the future? How are resources organised and do they achieve the desired results, i.e. is an effective structure visible in the
organisational chart, job descriptions, formal rules, policies and procedures and codes of practice, and work procedures? Do each of the above actually work, do they motivate personnel to act safely and achieve high levels of performance?

At a personal level, how well are managers actually managing safety and do their styles and skills fit the desired outcomes and the people and skills in the organisation? At an operational level, have managers been provided with the skills to effectively sense and define problems, before they select and implement solutions?

It should be remembered that sufficient financial, manpower and other relevant resources must be accurately identified in the planning phase (p. 2 - 92). These will then need to be endorsed by the management board and if they have been incorrectly calculated, with more subsequently being required, then the possibility exists that they will not be forthcoming and the change project may subsequently founder. This is, therefore, a major area to be investigated and will require the expertise of the change agent, if it is to be undertaken with accuracy.

The subject of employee resistance to change, and the effects this may cause are well documented (Lawrence, 1969; Du Brin, 1974; Goldstein, 1988; Hale, 1994), having long been recognised as a problem area in the management of change. Traditionally, it is to be seen in the form of employee resistance to new ways, emanating from issues such as a fear of economic loss, potential social disruptions, and fear of uncertainties. The latter may be present at any level within the organisation, since change will often involve the unknown, and may be seen as a threat to an individual’s role or power base. It may also be the manifestation of the fact that the organisation has not laid the groundwork for change and the formal organisational design must be compatible with the full implications of the change.

It is a subject that does, therefore, demand detailed attention. Acting on the positive aspects of the results of change, these will need to be communicated together with the potential
problems that are likely to require to be addressed. In this way, it is possible for an atmosphere of trust to be created. Furthermore, participation in the planning and development stages has the potential to create the ownership that will be essential. Knowledge of how the change is progressing will also help to reduce any fears.

Kilmann (1989) identified that at the centre of potential barriers to success lies the three issues of culture, assumptions and psyche. Taking the traditional definition of culture as the shared values, beliefs and expectations of its personnel, this needs to be analysed to establish its current condition i.e. what is the standard behaviour towards safety and does it support the behaviour that is needed for health and safety success?

Assumptions are the beliefs that are taken for granted to be true, but may not actually be so, as underlying the decisions may be a set of undeclared and untested assumptions. The key question to be asked is whether the critical assumptions that are being made and which affect major decisions, are relevant and universally adopted.

Psyche relates to what people want, fear, resist, support and defend and which underlie the eventual success or failure of the decision to change and the action taken to achieve it. Killmann (1989) suggests that a useful diagnostic test is to establish whether managers are frequently surprised when the solutions they propose are not accepted by their employees, thereby suggesting some inaccurate assumption about some aspect of their psyche.

It must, therefore, be questioned whether any or all of the above three issues are actually presenting themselves as barriers to success.

Playing a central role in problem analysis identification and resolution, will be the team approach. Involving personnel in a synergistic team approach is likely to result in high quality decisions and employee commitment to implement the decisions reached.
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Potential problem analysis, referred to in both HSG65 (HSE, 1997a) and the Advisory Committee on the Safety of Nuclear Installations, Third Report (HSC, 1993), is the ability to predict and prevent potential problems from occurring by the taking of appropriate action to eliminate or minimise the effects should the problems arise. Whilst undoubtedly difficult to achieve, Bird and German (1987) identify potential problem analysis as "the supreme problem solving skill", the application of which is "the mark of the master manager".

They advocate the adoption of the following seven-point plan to identify and address production or service based problems:

1. What could go wrong?
2. What, specifically, is each potential problem?
3. How risky is each potential problem?
4. What are the possible causes of each problem?
5. How probable is each possible cause?
6. How can each significant potential cause be prevented or its probability be reduced?
7. What contingency actions are in order?

This approach does, however, have its limitations within the context of potential problem identification associated with organisational change development issues. Being less tangible, the basis of such an approach would be to conduct a systematic investigation to predict problems and then take action to prevent the potential problems from becoming real. In the
event that such an approach is not effective and problems do arise, to identify these at the earliest opportunity, and then take action to minimise the effects. On that basis, the following approach will be more relevant:

1. Identify the objective.

2. Identify the stages involved in its achievement.

3. At each stage, what can go wrong.

4. What are the likely causes.

5. How can they be prevented.

6. Implement the plan.

This technique may be applied not only to new developments, but what might go wrong in well-established situations. Predicting and preventing potential problems from occurring seeks to encourage the analysis and management of existing and potential problems as a routinely used loss prevention tool. As such it requires both analytical and creative thinking. Having identified what can go wrong, it is then possible to proceed to traditional problem solving techniques.

**Problem Solving**

'Force field analysis', which has already been discussed in the planned approach to change, was developed by Kurt Lewin in 1951 and designed to discipline those involved with change to identify the driving forces that are in support of development and the restraining forces that will inhibit it. In this way, the driving forces can be strengthened while the restraining forces weakened or eliminated; it then being possible to alter the state of
equilibrium in favour of the direction of change. Lewin's model is represented in Figure 2.9 and may equally be applied to the problem-solving situation.

A well known example of problem solving within a Quality Control context was developed by Ishikawa (1985) to identify the root causes of problems. He advocated that the problem be identified, together with its contributory factors, in order that from these 'causes' their solutions may be worked out. The technique is encapsulated in what has become known as the 'Ishikawa Fishbone Diagram'.

Desired balance

<table>
<thead>
<tr>
<th>Desired balance</th>
<th>Resisting forces</th>
</tr>
</thead>
<tbody>
<tr>
<td>Present balance</td>
<td>System equilibrium</td>
</tr>
</tbody>
</table>

Change strategy:
1 Unfreeze
2 Change: reduce resisting forces; increase driving forces
3 Refreeze

Figure 2.9: Lewin's 'force field' model

In Bird and Germain's 'Practical Loss Control Leadership' (1987), seven steps were put forward as forming a fundamental framework for effective problem solving and are used as a combined, seven stage process. The authors say, "If you have done the job well -- have
recognised the problem, have identified causes, have developed and evaluated solution alternatives -- then making the decision (selecting a solution) is rational and relatively simple." The seven stages are:

<table>
<thead>
<tr>
<th>R</th>
<th>ECOCGNISE THE PROBLEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>NALYZE THE PROBLEM</td>
</tr>
<tr>
<td>I</td>
<td>DENTIFY THE PROBLEM</td>
</tr>
<tr>
<td>D</td>
<td>EVELOP POSSIBLE SOLUTIONS</td>
</tr>
<tr>
<td>E</td>
<td>VALUATE POSSIBLE SOLUTIONS</td>
</tr>
<tr>
<td>R</td>
<td>EACH A DECISION</td>
</tr>
<tr>
<td>S</td>
<td>TIMULATE ACTION</td>
</tr>
</tbody>
</table>

Furthermore, consideration will need to be given to communicating the decision and action plan to those affected. This will include developing a plan that will communicate why the action is being taken, who will be affected, what the benefits will be, what each person's role will be, what adjustments will be required, and when the plan will go into effect.

**Gaining Support for the Initiative**

Having refined the plan to the extent that it is almost ready to implement, then it must be endorsed by the chief executive and board members. Their support and involvement is essential and they must be briefed on the possible constraints that will arise. They must also be thoroughly familiar and committed to the resource implications of the initiative.

In this way, by being briefed in advance of potential problems and the financial implications, if they are required to add their support in the resolution of problems encountered, they will be committed to their resolution.
Similarly, all staff, through briefing groups will be aware of the implications of the change process and committed to its successful conclusion.

**Identifying the Management Arrangements**

Change will only be successful if all levels of management, from chief executive to supervisors, are aware of their roles and responsibilities. Throughout the planning process, the change agent and management group will need to review the extent to which this needs to be defined at each level and the monitoring arrangements which will be required to ensure that key personnel are performing to the performance criterion established for them.

**Performance Standards and Associated Timescales**

Within the planning phase, the setting of performance standards and associated timescales for each element of change, will be a feature that is critical to their accomplishment. The importance of each is well recognised in the health and safety field, and as we learn from Bird and Germain (1987), “Measurement involves comparison with standards. Without adequate standards, there can be no meaningful measurement, evaluation or correction of performance.” The setting of such standards must be undertaken at the planning stage, and can then be adapted as changing circumstances dictate. Without them progress cannot be measured, or deficiencies corrected.

**Performance Standards**

The Health and Safety Executive's 'Successful Health and Safety Management' (1997a) places significant emphasis on performance standards, identifying them variously as:

"A key part of the process of establishing control is to set performance standards which link responsibilities to outputs, recognising that the achievement of goals is based on specific, defined work with measurable..."
outputs. It may be necessary to draw up written systems, rules or procedures to clarify the way jobs or tasks should be done to achieve the desired results.”

“Performance standards are the basis of planning and measuring health and safety achievement.”

“Setting performance is essential if policies are to be translated from good intentions into a series of co-ordinated activities and tasks.”

Therefore, once the development plan is underway, without the ability to measure the extent to which individual objectives are being achieved, no meaningful measure of the extent of success will exist. Neither will it be possible to recognise where adjustments need to be made in order to keep the programme on target.

The developments in quality management already referred to, in which optimistic objectives have failed to reach expectations, offer important lessons for those who are involved in achieving health and safety improvements. “Similarities between quality management programmes and the management operations identified in the Management of Health and Safety at Work Regulations 1992 (the 'Management Regulations') will be recognised. For example both systems require that clear performance standards are established.” (HSC, 1994). The systems referred to are defined to relate to the setting of standards for management action, standards for the assessment, prevention and control of risks, and standards of documentation.

However, standards are not just about those specifically set as part of a development programme. For example, it will need to be remembered that those set in the Health and Safety Policy and in individual policies and procedures relate to legislation. Examples being the Control of Substances Hazardous to Health Regulations 1994, Manual Handling Operations Regulations 1992, Health and Safety (Display Screen Equipment) Regulations.
1992, and the Workplace (Health, Safety and Welfare) Regulations 1992, all of which set performance standards. Implementing each, either as part of an overall development strategy, or individually, requires the achievement of their separate requirements (the standards).

_Timescales_

The importance of attaching timescales to objectives is that they establish a discipline for the achievement of stated objectives within given timescales (HSC 1994, HSE, 1997a). Without such timescales, the accomplishment of objectives is likely to drift, even to the extent that the initiative may be abandoned.

In the first instance, timing will be related to the time needed to plan, endorse and assemble the resources needed, together with the individual capabilities required to put the plan into action. This will be followed by the time required to implement the plan, i.e. to act on the concept, and the endorsement of it. At the root of the process is the ability to implement the plan effectively and expeditiously. It is for this reason that “objectives and targets need to be measurable, achievable, and realistic” (HSC, 1994).

Initiatives will have a tempo based on the speed and depth of the process to be undertaken which in a structured, planned approach will need to be set during the planning phase. It will focus the attention of those with specific responsibilities on what they have to do and by what time. Classification by such time-frame may reasonably be set under short, medium and long-term objectives, whichever (by investigation) is appropriate. In this way, unwarranted deviations from the plan can be identified and acted upon.
2.5.5 The Action Phase

Introduction

The action phase sees the planning phase reach fruition. It is here that the efficiency, depth and extent of the planning undertaken will be tested. Have all the reasonably foreseeable problems been taken into account? By evaluating implementation at each phase, any deficiencies will become apparent. An effective monitoring system will pick these up as soon as they become evident; in this way appropriate remedial strategies can be developed and implemented before they have the potential to disrupt the overall plan.

While every attempt will have been made to develop the plan to such a state that implementation should be straightforward, it is unlikely that it will take place exactly as was envisaged. It is for this reason that some flexibility must be built in. The implementation team must look for signs of deviation as the plan unfolds, meeting regularly to monitor progress. Employees' representatives should be involved and encouraged to take personal responsibility for the change. In this way they will be in position to exercise a level of internal control, although their understanding of what is happening will be determined to an extent by what they do. In this respect it helps them to take responsibility for change, whereas strict external control would take that responsibility away from them.

The Action Phase consists of the following two stages:

1. Implementing the action plan.

2. Evaluating the implementation process and, where necessary, making adjustments.
Implementing the Action Plan

Implementing the Action Phase is the point at which the planning process is put into action and from which time all those having designated responsibilities are required to carry them out according to the guidance which will have been previously issued.

This can be likened to a military operation that is undertaken strictly in accordance with a set strategic plan. Deviations may be identified as necessary, but these will be channelled through the change agent and management group, agreed and put into action.

Evaluating the Implementation Process and Making Necessary Adjustments

Planned change is unlikely to be completed precisely in accordance with the original plan. During development, it will be necessary for all those with developmental responsibilities to identify where attention is required. It may be that cultural aspects require to be addressed, or new training skills are necessary for those who have entered the organisation since implementation first took place. Alternatively, it may simply be some form of fine-tuning. Therefore, the question to be asked is, has the change programme achieved the desired results? This calls for a before and after comparison, which provides the basis for assessing the programme's impact. To have an effect throughout the organisation may take some significant time and there will clearly be a time lag, particularly with those who are most remote from the changes. Improved decision making may, for example, take some time before it is felt. Measurements do, therefore, need to be taken some time after the event otherwise the results are likely to be spurious.

2.5.6 The Integration Phase

Introduction

The Integration Phase is the point at which the exploration, planning and action phases, are eventually brought together to achieve a position in which the specific change issue(s) is not only consolidated but that the organisation is prepared to manage change thereafter.
CHAPTER TWO

It begins with the need to reinforce the new behaviours which the change has necessitated. Decreasing reliance on the change agent and ensuring that if the change was tested in only one part of the organisation, that it is subsequently disseminated throughout the organisation. Managers and staff will need to be trained to monitor the changes and to recognise their need, and to improve on them.

The Integration Phase consists of the following four key stages:

(i) Reinforcing the New Behaviour
(ii) Decreasing Reliance on the Change Agent
(iii) Passing on Successful Change throughout the Organisation
(iv) Training Managers and Staff to Monitor the Changes and Seek to Improve on them

Reinforcing the New Behaviour

Unless reinforcement of the new behaviour is undertaken, it is likely that personnel will readily slip back into the old ways. Managers at each level will be required to monitor subordinate staff, reinforcing the new behaviours where necessary.

The principle of reinforcement applies at all levels within the organisation.

Decreasing Reliance on the Change Agent

Once the initial implementation process is underway and the programme is operating according to the timescales and objectives set, then the process of decreasing reliance on the change agent should begin.
CHAPTER TWO

Where the change agent is from outside of the organisation, then one or two members of the steering group, having worked closely with that person, should begin to take over the development process. In this way, reliance can be decreased and skills gained to enable them to take over the advisory role and in future to manage other such projects.

**Passing on Successful Change Throughout the Organisation**

There may be occasions on which it has been decided that change will be piloted in one part of the organisation and only when it has been successful, will it be developed elsewhere.

Where this is the case, the change agent and steering group will make the decision to develop further, as circumstances fulfil the criteria they set.

**Training Managers and Staff to Monitor the Changes While Seeking to Improve Them**

Throughout the preceding phases and their respective stages, managers and staff will have been drawn into the development process, and trained to fulfil certain identified roles and tasks. One such task will be to monitor the changes within their respective areas of responsibility.

Where they identify that unwanted deviations to the plan have arisen, to work with the change agent and project team to resolve them. At a more constructive level, when the basic performance criterion have been met, to identify how they may be improved upon. To then clarify how that is to be achieved and to then undertake a planned sub-programme of change.
CHAPTER TWO

2.6 Conclusions on the Review of the Literature and Developing a Study to Determine the Extent to Which Change Programmes are Being Comprehensively Planned

The review of the historical background to this research, together with the literature review, have identified that there was little sophistication required in the management of safety in pre-1974 industrial legislation. While this has been addressed in many areas since then the subject of planning for the successful introduction of change remains one that has largely not been tackled. The literature review has also established that basic organisational development principles have not been carried across into the literature or practice relating to health and safety development methodology, similarly little or no emphasis has been placed on problem solving. Organisational development has its roots in the period immediately following the Second World War. It is based on the principle that to achieve a given objective involves planning processes that are based on setting and accomplishing a series of objectives. This has been tried, tested and proven. Safety has developed without the benefit of the application of such a systematic approach. Indeed the guidance that does exist, principally in the U.K. in the form of the HSE's HSG65 (1997a), essentially bypasses the planning and implementation processes associated with new initiatives.

Employers have, therefore, generally been left to their own devices to recognise the need for, and put into practice, a formal holistic approach to their planning and development of change/improvement programmes. Although often undertaken under pressure, the distinction between identifying what is required to change and then defining the direct action that needs to be taken to achieve it, is rarely forgotten. However, there is a further, although subtle component, which is also essential. This is to define, within a fully integrated process of planning, how the changes are to be most successfully implemented, bearing in mind those latent destructive issues, such as a range of potentially inhibiting factors, that are likely to arise. Specifically, it calls for their identification and management. Not being a part of the normal inventory of skills of the change agent they will, therefore, often be missed.
Emerging from the review of the literature is, therefore, the message that the achievement of organisational improvement programmes is a process synonymous with the management of change. Such change may, for example, be of a relatively simple nature, requiring attention to one aspect of an organisation's safety activities. Alternatively, it may involve complex improvements across a wide range of a company's activities, such as with the objective of developing its safety culture. In either case, if such change is to be achieved and be sustainable, improvements must not only address the immediate improvement objectives but also how they may be developed and maintained. That programmes must, therefore, be planned and executed with care becomes clear from the wealth of literature available in the organisational development field. By the adoption of the traditional organisational development, planned approach to change, and incorporating elements of the emergent approach, development plans becomes more adaptive to the external pressures for change exerted on an organisation. In this way, changing circumstances, which might otherwise inhibit or deviate from the original plan, may actually be employed to help to improve it. This might be achieved by preparing a broad range of personnel to manage the change process, rather than having to react to it.

However, the most effectively researched and planned change programmes are subject to negative pressures that unless addressed, may result in failure. These may be as a result of incomplete planning of the original programme, such as failing to gain the commitment of the chief executive, board and other influential members of staff, or the failure to allocate adequate resources. It may also be a result of failing to involve the organisation's personnel, and subsequently incurring their resistance. The process of change is, therefore, complex. It unlikely to be achieved successfully unless managed by one or more individuals possessing the skills and experience to plan how it is to be undertaken, and to act as the catalyst by which members of the organisation recognise its need and take an active part in it.

It has been established that planning change and the component parts of associated development programmes, is a key feature of organisational development literature.
However, it is also now clear that within the safety literature, no such clarity is to be found. This gap in knowledge and understanding is likely to be reflected in the application of safety development techniques, and this brings into question the extent to which comprehensively planned and staged development programmes are being undertaken.

**Aims of the Research**

In the light of this apparent failure to identify the importance of planning and standard setting on health and safety development and improvement programmes, this research aims to investigate the extent to which organisations comprehensively undertake the planning of their health and safety improvements. A further aim is to investigate whether organisations are including within their programmes, issues such as standard setting, which is the measure by which the success of change programmes may be monitored.

Establishing the present state of planning and development practice amongst a range of different sized companies, engaged in differing industrial activities, should provide useful data relating to these questions. If the answers reveal that the planning process is being undertaken adequately, then it will raise the question of why this is so against a failure to raise an awareness of the importance of the subject. If, on the other hand, it identifies that planning is not being conducted adequately, then clearly there is a gap in knowledge that needs to be closed.

**The Research Questions**

1. To what extent, and in what way, do British Companies plan for Health and Safety improvements?

2. Is planning for Health and Safety improvement related to company size or industrial activity?
3. Are Companies setting standards in their Health and Safety Improvement Programmes against which the success of change can be measured?

Having determined the research questions, it was necessary to address how answers to them could be provided. Chapter Three will describe how this was undertaken.
CHAPTER THREE - METHODOLOGY

3.1 Introduction

This chapter describes the means by which the research data were obtained and analysed. It includes the following:

* A review of the methodological options available to meet the research objectives and the principal method selected;

* A review of the selection criterion for participating companies;

* The information source from which individual company information was obtained;

* The design of the Questionnaires, including data input considerations;

* Methods used to contact participants, send out questionnaires and ensure the targeted total of completed questionnaires was achieved;

* Data acquisition, coding and the use of SPSS for Windows for data input and analysis.

3.2 The Methodological Options Available to Meet the Research Objectives and Principal Method Selected

Having established the aims of the research and the questions to be addressed, it was necessary to consider the methodological options available for use in such a study. There are essentially six observational techniques that may be applied by those engaged
in social science research, each of which are considered below, together with the rationale underpinning that selected as the most appropriate for this study.

It was the author’s intention to gather information from a number of different sized organisations engaged in a range of industrial activities, thereby permitting analysis of the data to establish whether these have a bearing on the level of development planning being undertaken. Of necessity, this would involve a significant number of participants and take the form of a quantitative, rather than qualitative approach, on the basis that the larger the sample size, the more accurate the resultant data is likely to be. However, this also required a compromise between theoretical sampling requirements and practical limitations such as time and cost (Oppenheim, 1992).

1 Evaluation Research

Undertaken for the specific purpose of evaluating programmes of real life social interventions, such research is traditionally undertaken where social reform has taken place and the need exists to evaluate the impact of that intervention.

This research is principally concerned with establishing what actions have been taken, rather than, from the experiences of respondents, evaluating the effects of specific interventions. On that basis, evaluation research was not considered a suitable vehicle for this study.

2 Experiments

Although primarily associated with the physical sciences, the use of experiments may have a place in those areas of social science research in which a group of subjects can be selected and subjected to some form of action, the consequences of which can then be observed. By its very nature, the method is most suited to research projects
involving limited and well-defined concepts and propositions, usually within the constraints of the study of small group interactions. Principally, they facilitate the exploration of how groups organise themselves and how they deal with problems.

The advantage of this method is that it is possible to observe the direct impact of an experimental stimulus. With no other stimulus present, the change induced may be directly attributable to the experimental stimulus which can, with relative ease, be repeated on a different group where it is considered necessary to re-test the findings. However, because it is carried out under controlled conditions, it is essentially an artificial process in which the social processes that occur might not be repeated in more natural settings.

As this research sets out to establish the manner in which organisations are undertaking the planning process, it is exploring actions that have taken place. It will, therefore, be seen that this is not appropriate for examination in the experimental setting and this method was, therefore, discounted. Furthermore, experiments have practical limitations when, as in the case of this research, results needed to be considered on a quantitative basis against company size and industrial activity groups.

3 Field Research

Involving direct observation, in natural settings, of what happens in the working environment, field research provides the researcher with the ability to obtain a comprehensive understanding of events actually taking place.

It can provide a significant depth of understanding of the subject under review. but unless undertaken on a substantive scale, is qualitative rather than quantitative and, therefore, seldom able to yield precise information about a large population. On that basis, the conclusions are considered to be suggestive rather than definitive. For these
reasons, it was discounted as a viable option in this research. Furthermore, it would not have been feasible to observe directly how change was being managed since that would have been a major project to set up, administer and observe, even if only relatively small numbers had been involved.

4 Unobtrusive Research

Unobtrusive research draws on data that is generally available through the re-analysis of existing statistics, or in the case of content analysis, by studying recorded communications such as those contained in book, research article, or speech form. Although having advantages of economy in terms of time and money, its use is severely limited to subject areas that are appropriate to the use of data that has already been gathered and recorded. The specific nature of the information required for this study is not generally available and the method was, therefore, discounted.

5 Survey Research

Questionnaires and interviews have been described as the workhorses of social research (Adams and Schvaneveldt, 1991). They may be used for descriptive, explanatory or exploratory purposes, and are "probably the best method available to the social scientist interested in collecting original data for describing a population too large to observe directly." (Babbie, 1995).

Being one of the most frequently used techniques, survey research involves collecting data gathered from asking questions, which may be in the form of self administered questionnaires, or interviews conducted either face-to-face, or over the telephone. Particularly appropriate to describe the characteristics of large populations, either could be applied to collecting data for this study. However, the time and logistics involved in setting up and conducting interviews rendered the use of self administered
questionnaires, described by Smith (1975) as constituting "a self administered interview", the most appropriate for this study.

6 Focus Groups

Although focus groups are often considered in the experimental research setting, principally because they are ideally suited to bringing together people to observe their actions against given stimuli, their use is becoming more frequently seen in a diverse range of applications. This increasing use (Morgan, 1996) may see their application as a preliminary study leading to quantitative research, as a self contained and principal method of research, a supplementary source, or as part of a multi-method study. They "involve the persons specially selected owing to their particular interest, expertise or position" (Sarantakos, 1998), for the purpose of the collection of information relevant to the research, brainstorming possible solutions and facilitating group discussion as a tool of data collection.

Selection of respondents may be achieved by a random procedure, systematic or cluster sampling or other method justified by the object of the study, nature of the respondents, or the underlying methodology. The size of the group must be large enough to provide a basis for a reasonable discussion, while not too large to be uncontrollable.

However, while focus groups do encourage participants to express their views and evaluate situations, they also have drawbacks. Domination by one or two individuals may affect outcomes, success greatly depends on the ability of the leader to keep the discussion focused, and the composition of the group, and the findings, may not be representative. They also have the potential for not being able to yield precise information about a large population. For these reasons, such groups were not used during this research as the principal method of data collection. To have done so was
also considered to hold the same logistical problems as the use of individual interviews described above under *Survey Research*.

However, focus groups were used at an early stage of the study for the purposes of:

i) Testing the research hypothesis.

ii) Testing the specific research question.

This was undertaken by brainstorming and exploring these issues with two groups chosen for their professional expertise and consisted of safety professionals at an Institution of Occupational Safety and Health, and separate Universities Safety Association meeting. Each group consisted of approximately fifteen members and also proved invaluable in confirming the need for such a research project.

### 3.3 Research Subjects

#### 3.3.1 Basic Selection Criteria and Information Source

The data gathering instrument was a questionnaire, applied to a survey of companies selected on the basis of their industrial activity and numbers of staff employed (Sections 3.3.2 and 3.3.3).

Segregating companies according to their industrial activity, combined with three different employee size sub-groups, enabled a response analysis to be undertaken of each, against individual research questions. From a research perspective, it was anticipated that as well as providing empirical evidence in support of the research questions, these two elements would yield potentially valuable material. This would be in relation to the extent to which industrial activity and company size have a bearing on the effectiveness with which the planned development of organisational safety management is being undertaken.
The information source from which participating companies were selected, was Dunn and Bradstreet's Directory of 'Key British Enterprises' (1996). This lists 50,000 of Britain's actively trading manufacturing, distribution and service employers, in a format which permits the extraction of a range of individual company information in a clearly presentable form. It is based on the primary line of business of companies, grouped under nine separate industrial headings.

The computer readable database enables searches to be made across up to thirty five fields of data, although for the purposes of this research, initial interrogation was only necessary within the two separate fields of primary line of business and numbers employed. This initial search of the database was then refined using the 'Document Format' options tool, thereby permitting selection of specific elements from company records for printing, such as company name, address and telephone number.

### 3.3.2 Identification of Industrial Activity Groups

'Key British Enterprises' was found to be particularly suited to providing the basic information from which candidate companies could be selected. The data it contains is based on the following nine groups, each being identified within the database by their United States, Standard Industrial Classification Code, and representing the broad range of current industrial activity within the United Kingdom:

(i) Agriculture, Forestry and Fishing
(ii) Mining
(iii) Construction
(iv) Manufacturing
(v) Transportation, Communication & Public Utilities
(vi) Wholesale Trade
(vii) Retail Trade
Although the United Kingdom, Standard Industrial Classification Codes represent the same range of activities, albeit in slightly differing categories, the computer searching facility with these is severely limited. On that basis, the United States coding system was used.

### 3.3.3 Identification of Company Size Ranges

The selection of company size ranges was determined from observations made during the previous study conducted by the author (1995). Furthermore, during the initial telephone contact with prospective respondents that was made during the Pilot Study stages of this research, it was observed that there frequently existed a direct relationship between the level of expertise available within companies to manage or advise on health and safety, and company size. For example, the smaller the company the less likely it is for safety to be high on the management agenda and for personnel, formally trained to a competent level, to be consistently employed. Essentially, the following three levels of company size, and corresponding management arrangements for safety were identified and were, therefore, adopted as forming the basis upon which data would be collected relating to company size:

(i) **Employers with 1-99 employees**

   In these companies it is expected that health and safety will usually form a minor adjunct of the main responsibilities of a member of staff.

(ii) **Employers with 100-499 employees**

   In these companies there may be staff with designated responsibility for health and safety and, where the activities of the company might potentially carry a high level of risk, a Health and Safety Adviser could be employed.
(iii) Employers with 500 and above employees

It would be more usual in these companies for there to be a Health and Safety Adviser employed, or the task being the responsibility of a senior member of staff having specific time allocated for the task and having received formal training.

### 3.3.4 Identification of Participating Companies

<table>
<thead>
<tr>
<th>US SIC CODES</th>
<th>INDUSTRIAL GROUPINGS</th>
<th>1-99</th>
<th>100-499</th>
<th>500+</th>
</tr>
</thead>
<tbody>
<tr>
<td>01-09</td>
<td>AGRICULTURE, FORESTRY &amp; FISHING</td>
<td>Case Nos.</td>
<td>Case Nos.</td>
<td>Case Nos.</td>
</tr>
<tr>
<td></td>
<td></td>
<td>1-7</td>
<td>8-14</td>
<td>15-21</td>
</tr>
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<td>MINING</td>
<td>22-28</td>
<td>29-35</td>
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<td>43-49</td>
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<td>MANUFACTURING</td>
<td>64-70</td>
<td>71-77</td>
<td>78-84</td>
</tr>
<tr>
<td>40-49</td>
<td>TRANSPORTATION, COMMUNICATION &amp; PUBLIC UTILITIES</td>
<td>85-91</td>
<td>92-98</td>
<td>99-105</td>
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<tr>
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<td>113-119</td>
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<tr>
<td>52-59</td>
<td>RETAIL TRADE</td>
<td>127-133</td>
<td>134-140</td>
<td>141-147</td>
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<td>60-67</td>
<td>FINANCE, INSURANCE &amp; REAL ESTATE</td>
<td>148-154</td>
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<tr>
<td>70-89</td>
<td>BUSINESS SERVICES</td>
<td>169-175</td>
<td>176-182</td>
<td>183-189</td>
</tr>
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</table>

**Table 3.1: Industrial Activity Groups and Company Size Ranges**

* Indicates the groups from which companies were selected to participate in Pilot Study (1)

** Indicates the groups from which companies were selected to participate in Pilot Study (2)

Table 3.1 represents the nine industrial activity groups, each sub-divided by the three company size ranges.

Using the 'Key British Enterprises' database, the identification of participating companies for Pilot Studies (1) and (2), and the Full Survey, was undertaken by inserting the relevant United States, Standard Industrial Classification Code relating to each one of the nine industrial groups, and then the required employee size range. The total number of companies meeting these criterion was then displayed, and in order
CHAPTER THREE

that the company name, address and telephone number of each could be shown, the
search was further refined using the 'Document Format' options tool, and additional
search tool 'KBEA POI'.

From each of the twenty-seven lists produced in this way, individual companies to be
asked to undertake questionnaire completion, either for the two pilot studies or the full
survey, were identified using random number selection. Where a company was selected
that had already taken part (or did not wish to participate), it was replaced by the
company immediately preceding it on the list. In this way, no company was used more
than once. Where a company did not wish to participate, or failed to return a
completed questionnaire, it was replaced by the company which immediately followed
it. Although substitution in this way was not necessary during the pilot studies, it was
required during the full survey.

3.3.5 Contact with Research Questionnaire Participants - The Stages Followed

Having identified individual participating companies, a standardised procedure was
adopted during the data gathering element of the research, from initial contact with
companies selected to participate in the survey, to the processing and checking of
replies. This approach was tested during the two pilot studies, and any adjustments
identified as necessary were made before embarking upon the full survey.

To ensure that no time was wasted, or duplication of any stages took place, it was
necessary to chart the stage each questionnaire had reached, at any point up to and
including data entry. The full name and address of each participating company was.
therefore, entered on a form (Appendix 1). Also, the name and title of the person with
whom contact was made, the industrial grouping of the company. numbers employed.
date initially contacted, date reply chased up (if necessary), company personal
identification number, and any additional, relevant information.
The procedure that was followed to contact the research participants and process and check replies consisted of the four stages detailed below.

Stage 1.
Initial telephone contact (Neederhoff, 1988) was made with the person within each participating company who was identified as having day-to-day operational responsibility for health and safety. That this was the correct person was confirmed during the conversation, and an explanation given of the objectives of the research. This was intended to capture their interest, following which they were asked if they would be prepared to complete a questionnaire. In the majority of cases, they agreed to do so and were advised that they would be provided with a copy of the research findings when these were available.

It was often difficult to speak personally to the individual having day-to-day responsibility for health and safety, but experience gained during the two pilot studies had shown this to be essential. Leaving a message with a secretary or other colleague invariably meant that the questionnaire would not be returned. Extra time spent at this stage was, therefore, well justified.

Stage 2.
For those who agreed to participate, a questionnaire was sent by second class mail, wherever possible on the day of the telephone conversation in order to keep the daily workload manageable. They were accompanied by an explanatory letter (Appendix 2) together with a second class, stamped and addressed return envelope (Dillman & Moore, 1983).
It was initially decided that two weeks would be adequate time within which respondents would be able to complete the questionnaire. However, this was often found to be insufficient and completion time was, therefore, extended to three.

Stage 3.

Where the completed questionnaire was not returned within three weeks, a further letter (Appendix 3) and questionnaire were sent (Miller, 1977). The process of chasing up replies by telephone with the person originally contacted, was extremely time consuming. This made the sending of a reminder letter a more practical proposition, both in terms of savings in time, which would otherwise have been spent on the telephone, and improved response rates. It appeared that actually faced with a further questionnaire, those who might not otherwise have bothered, did complete and return it.

If no response was received after the final reminder, another company was chosen, this being the company immediately proceeding that originally selected. In the event of that also proving negative, the company immediately following it was then contacted.

The failure rate for the return of completed questionnaires was distributed evenly throughout the company size ranges and industrial activity groups. To reach the required total of 189 completed questionnaires, a total of 247 were sent out.

Stage 4.

Returned questionnaires were checked to establish that all relevant sections had been fully completed. Where omissions were evident, telephone contact was made with the individual responsible for completion, and answers obtained or clarified. Approximately 20% of questionnaires required clarification in this way.
3.4 The Design of the Questionnaire

3.4.1 Rationale for the Questionnaire

A questionnaire was required which was designed to identify the manner in which change programmes are being undertaken. If it was to have any prospect of completion, it needed to be relatively brief, cover the essential points, and be easily understood. To meet these requirements, some compromises were necessary, as the need for brevity dictated that it would not be possible to include all the elements of change programmes identified in the review of the literature, and the author’s Integrated Model of Change (Section 2.5.2). On that basis, it was essential that the Exploration and Planning phases were adequately covered as they contained the core components of a formally and comprehensively structured development programme. It was decided that the components of the Action and Integration phases were not as critical to the initial planning stages, and in view of the need for brevity, could be omitted without having any adverse effect on the quality of the information to be gathered. The elements to be included and the rationale behind their selection are identified below.

(i) Safety Management Systems

It was important that the questionnaire had a central theme around which its questions were to be based and which respondents could use as a focus for their thoughts and responses. The effectiveness with which change is being managed must be measured against some pre-determined objectives. Commonly occurring central themes in safety management, are safety management systems and the elements contributing to a safety culture. Either would provide the basis against which could be assessed the action taken to develop organisational safety management and provide the focus of attention required.
On the basis that safety management systems have a broad applicability in the work situation and cover a wide range of activities, it was felt that these should form the basis of the questionnaire relating to work associated with their development. Included specifically, were questions on the extent to which they are being implemented developed and/or maintained.

(ii) Assistance with the Development Process

The review of the literature has shown a lack of relevant material to assist with development, and it is of importance to the research to know what material organisations use to assist them with their improvements. They would, therefore, need to be asked whether reference material was available to them, and to identify specifically what it was. Analysis could then be undertaken to establish what that material had to offer and to what extent it had not been identified in the review of the literature.

On the basis that many organisations would be unfamiliar with the development process, it was thought that it would be helpful to know to what extent external help has been sought with the achievement of objectives. Where such external assistance had been engaged, it would then be possible to analyse whether any improvement had been evident in the manner in which development had been undertaken.

(iii) The Setting of Performance Standards

It was seen within the review of the literature that without the setting of performance standards there can be no meaningful measure of progress. It is, therefore, important to establish the extent to which such standards are being set and thus provide a means of measuring how far this basic concept of development
methodology had permeated into the thinking and practice of those undertaking change.

(iv) Difficulties Encountered in the Development Process

Having undertaken an improvement programme, it would be important to know what difficulties were encountered in meeting objectives and whether, with the benefit of experience gained, development would have been approached in a different manner.

From the responses received, it was envisaged that it would be possible to establish the extent to which organisations are learning from the development process and whether any common themes in the difficulties encountered are being experienced.

From the above four basic elements, a questionnaire was constructed to determine the manner in which organisations are currently planning and managing the change associated with the development of their management of safety.

3.4.2 The Design of Pilot Study (1)

The first pilot questionnaire (Appendix 4) was designed to measure responses to the independent, mediating and dependent research variables.

The independent variable, or main research question, asked whether in identifying where improvements are required to their management of safety, employers are failing to identify and follow a formal development plan?
CHAPTER THREE

The mediating variable asked if an absence of guidance on the stages involved in the development of health and safety is resulting in poorly planned and executed initiatives?

The dependant variables asked if:

(i) Failure to adopt a formal development plan is generally resulting in a lack of standard setting, against which the progress of development may be measured?

(ii) Where development is taking place, is there a failure to take into account potentially inhibiting factors?

and

(iii) There is generally a failure to develop and implement avoidance strategies, by which inhibiting factors may be effectively managed?

The questionnaire began with addressing the independent variable and the failure of many employers to follow a formal development plan. Question 1 asked whether respondents had embarked upon a strategy directed towards implementing, developing or maintaining safety management systems, and Question 3, whether it was necessary to review these systems before improvement was begun. Respondents were asked to identify up to three reasons that had prompted their programme of improvements, and how the need for these was identified.

Questions 2(a) and 2(b) addressed the mediating variable, asking whether reference material was available to assist respondents who had embarked upon health and safety improvements and to list up to three such documents found to be most helpful. This was particularly relevant to the research, as documents quoted could be analysed to
determine exactly what material they did contain which might be directly relevant to the development process.

Question 4(c), addressed the first dependant variable, asking whether any standards had been set by which progress, or the success of improvements could be measured.

Question 4(e), addressed the second dependant variable, asking for the identification of any significant difficulties encountered.

Questions 6(a) and 6(b), addressing the third dependant variable, asked if, with the benefit of hindsight, respondents would have approached the organisational development of safety in any different way and if so, what would that have been.

Questions peripheral to the main research, but which would provide background information to the safety development process were then asked, such as:

* Whether external help was sought to assist with development? (Question 3(d)).

* When was the improvement process embarked upon? (Question 3(e)).

3.4.3 Addressing the Exploration Phase of Development Planning in the Questionnaire

The three stages of the Exploration Phase of the author's Integrated Model of Change were reviewed in Chapter Two (Section 2.5.3). The requirement to establish how organisations recognise the forces for change, the role of auditing, and the selection of a change agent being incorporated into the change management process, demanded adaptations to the manner in which they appear in the research questionnaire. Such adaptations were also necessary in order that the questions could be presented to
respondents in a logical sequence. For the purposes of information gathering, the three stages were, therefore, addressed under the following headings:

(i) Recognition of the Forces for Change at Work on the Organisation

(ii) Availability of Development Literature

(iii) External Help Sought with Improvements

(i) Recognition of the Forces for Change at Work on the Organisation

Recognition of the forces for change that are at work on organisations, and the role of auditing, were amalgamated under Questions 3 (a) – (c) and 4(a). They explored, against a review of safety management systems being conducted and what had prompted such a programme of improvements being undertaken, how the need for these is being identified. By not specifically asking what respondents considered were the external forces at work on their company, it could be established whether recognition of the forces for change and the role of auditing, are a significant feature of their perceived need for improvements.

(ii) Availability of Development Literature

Questions 2(a) and (b) were additional to the components of the Exploration Phase and sought to determine the reference material available to assist respondents with improvements. In Chapter Two, the considerable organisational development literature and lack of health and safety material was reviewed. This question, therefore, sought to elicit the extent to which respondents are aware of the organisational development literature and if so, what they found most useful.
External Help Sought with Improvements

Question 3 (d) asked whether external help was sought to assist with improvements. For reasons of brevity it was not possible to explore the qualifications of those engaged to help. Nevertheless, there would be provided an indication of the level to which external assistance is being sought to assist with improvements. Furthermore, if reference is not made to the organisational development literature available, it is unlikely that those employed are aware of it and have passed on that knowledge.

3.4.4 Addressing the Planning Phase of Change Programmes in the Questionnaire

For the purposes of the research, it was essential to establish the level to which formal planning was being undertaken. This was the first research question (p. 2 - 110) and within the author’s Integrated Model of Change the Planning Phase consisted of seven stages. However, for the purpose of information gathering, as with the Exploration Phase discussed in the previous section, significant refinement was required to the form in which the components appeared in the questionnaire. These adaptations were designed to ensure they would not affect the essential data gathering capability required of the research and were necessitated by the need for the questionnaire to be kept succinct and presented in a logical sequence. Based on safety management systems, questions broadly explored the level of planning currently being undertaken in their development.

Testing the extent to which this was being carried out was developed throughout the questionnaire.

Either directly or indirectly, the seven stages of the Planning Phase were, therefore, addressed although each was not covered directly in the questionnaire. Question 3(d) sought to determine the dates from which improvements were embarked upon.
The Research Questionnaire was accompanied by an Organisational Profile Questionnaire (Appendix 5). This asked for details of participating companies such as numbers employed and served as a check that the company was within the correct numbers employed group. It also contained a section requesting comments on respondents' experience in the completion of the questionnaire, it being anticipated that information given would be helpful in identifying any adaptations required to ensure that the questionnaire in its final form, was sufficiently user friendly.

3.4.5 The Selection of Companies to Participate in Questionnaire Completion

Ten companies were selected to participate in the Pilot Study. The procedure, by which they were identified, respondents contacted, forms sent out and processed was as described in Section 3.3. The ten company size ranges from which the companies were selected are marked '*' in Table 3.1 (p. 3 - 120).

The Pilot and Organisational Profile Questionnaires, together with an accompanying letter, were sent to a total of ten companies during the period June to August 1996.

3.4.6 The Results of Pilot Study (1)

When returned, every questionnaire was analysed, following which the content and completion was discussed with each person who had undertaken the completion process. This was considered necessary to ensure that full, unbiased information was gathered on the suitability of the questionnaire for a full-scale study. Four issues became clear from these investigations.

1 That there was some lack of understanding of the term 'safety management systems'.

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As two-thirds of respondents were from very small to medium sized companies, where non-specialist staff were often involved in managing health and safety, this would present a problem. It is a specialised term, not universally understood. Completion for many did, accordingly, prove to be difficult.

2 That the questionnaire lacked a clear introductory section, setting into context the questions which followed, thereby providing respondents with terms of reference against which their replies to later questions could be made.

3 Linked with 1 & 2 above, open-ended questions that might otherwise have been acceptable, such as 4(a), 4(d), and 4(b), were, for some, found to be confusing.

4 The difficulties presented by each of the above, meant that the time and effort involved in completion would, for many, result in their failing to complete the final questionnaire.

To rectify these deficiencies, a significant revision was, therefore, required for Pilot Questionnaire (2) (Appendix 6). By incorporating these four points in a revised questionnaire, overall completion was considered to be possible by those with no specialist health and safety knowledge, while being easier and quicker for those who did.

3.4.7 Development of Pilot Study (2)

A clear introduction to the questionnaire and the context within which the questions that followed were posed, was achieved by listing eleven of the commonly recognisable
elements of a safety culture. These were broadly the eleven elements identified by the Confederation of British Industry in 'Developing a safety culture' (1990), and which are listed in Chapter 2 (p. 2 - 32). They were selected bearing in mind the varying levels of health and safety expertise of those who would be undertaking completion, and considered to be those that respondents would be most able to relate to. Respondents were asked to indicate which of these were considered relevant to their organisation, and invited to identify up to a further 5 elements which were also felt to be appropriate. The formal planning of developments being undertaken commenced, therefore, with Question 5 of the Pilot (2) Questionnaire. Against the elements of the safety culture, sub-questions probed how far the traditional stages of a planned approach to change are being utilised. Beginning with establishing whether a plan had been produced which identified how the implementation process would take place, it progressed to question if the plan had included timescales, persons with special responsibilities, and any other components. The key role of performance standards in providing a framework, against which the progress or success of each element could be measured, was addressed under Question 6.

Subsequent questions were related to the planning and development of these elements. In this way it was no longer necessary to use the term 'safety management systems', or to employ as many open-ended questions. This not only put into a broader and more understandable context the questions directly addressing the independent variable, now Question 2(a)-(c) (formerly Question 1(a)-(c)), but also all those which subsequently related to the mediating and dependant variables. Other changes related to minor layout issues, not content.

As well as the above considerations, the ease with which the analysis of completed questionnaires could be undertaken and replies coded in preparation for data input, was also a major consideration at this stage of the design. Each question was, therefore, reviewed to ensure that it met these objectives. Where, as in Questions 1(b).
3(b), 4(d), 5(d), 6(b) and 8(b), respondents were asked to provide additional information, it was envisaged that it would be possible to code replies to each question under a limited number of headings, possibly no more than ten.

3.4.8 Contact with Questionnaire Participants and Results of Pilot Study (2)

Following the procedures identified in Section 3.2 for company selection, and contact with research participants, Pilot Questionnaire (2), (Appendix 6), was sent to a further 10 companies during November and December 1996. The ten company size ranges from which they were selected are identified '***' in Table 3.1 (p. 3 - 120). The same organisational profile comments form and explanatory letter accompanied the questionnaire.

None of the respondents to the second Pilot Study considered any improvements were necessary to the structure or content of the questionnaire, all stating that it was understandable, generally easy to complete, and of reasonable length. They identified that completion time was between 10 and 15 minutes.

A change was required to Question 5 of the second Pilot Questionnaire, which related to the implementation of improvements. Question 5 (a) had asked whether a plan had been produced identifying how the implementation of improvements would take place, and Question 5 (b) had asked, if the answer was 'No', whether this would have been of any assistance. As this answer could have also applied to new Question 5(b), it was moved to form the new Question 5(c).

By analysing all replies received under both Pilot Studies (1) and (2), it was established that replies to Questions 1(b), 2(b), 4(d), 5(d), 6(b), and 8(b) could be coded under no more than a maximum of ten headings.
CHAPTER THREE

3.5 The Full Questionnaire Structure

The changes identified to be necessary from Pilot Study (2) were incorporated into the final version of the questionnaire dated January 1997 (Appendix 7).

In her review of questionnaire construction, Courtenay (1978) stated that:

“A good questionnaire has to be designed specifically to suit the study's aims and the nature of its respondents. It needs to have some of the same properties as a good law: to be clear, unambiguous and uniformly workable. Its design must minimize potential errors from respondents, interviewers and coders. And, since people's participation in surveys is voluntary, a questionnaire has to help in engaging their interest, encouraging their co-operation, and eliciting answers as close as possible to the truth.”

Being satisfied that the questionnaire now met these criterion, identification of participating companies and the sending out of questionnaires, with accompanying letters (Appendix 8), commenced from March 1997.

3.5.1 The Selection of Participating Companies

For the full survey, the number of participating companies was significantly increased. Against each industrial activity group, using random number selection as previously described in Section 3.2.4, seven companies were selected from each of the three company size groups, thereby providing a total of twenty one companies from each industrial activity group. The number of seven was decided upon so that the total sample of 189 represented a reasonable sample size and one that could be completed within a sensible time.
As previously identified, these considerations were important. Experience gathered by
the author during earlier research (1995), and confirmed during the two pilot studies of
this research, identified that if success was to be achieved with the return of completed
questionnaires, it would be necessary to make initial contact with prospective
respondents. This would facilitate an explanation of its purpose and gain their
commitment to completion. This had proven to be an extremely time consuming
process with the additional time involved in processing the questionnaires, chasing up
those that had not been returned and selecting further participating companies, where
that proved to be necessary. It was considered to be achievable with the target set of
189 questionnaires.

Participating companies were restricted to those located within England and Wales
since for purely practical reasons, it was originally envisaged that it may have proven
necessary to visit a number of respondents to elaborate upon answers given. However,
this proved to be unnecessary, as it was possible to deal with all queries by telephone
contact.

In order that the progress of each questionnaire could be followed, and in preparation
for the data entry stage, each participating company was assigned an identifying case
number. These case numbers and data entry format are illustrated as a sample page in
Table 3.2. Case numbers are in column 1, beginning with 1 for the first company within
Agriculture, Forestry and Fishing, employing between 1-99 employees, and
progressing to 189 for the final participating company within Business Services
employing 500 and above employees.

A separate search was undertaken for each group of seven companies within each of
the twenty-seven survey groups (9 industrial groups x 3 employee size groups). The
CD-Rom format presented a particularly flexible means of accessing this information.
It was anticipated that not every company approached would be prepared to participate in questionnaire completion, or that it would be possible to make contact with identified individuals within each company. On that basis, full details of one company immediately preceding the randomly selected number, and one immediately following, were obtained in order that in the event that the first company did not participate, the preceding company could then be selected, followed by the last, should that be necessary. During the process of attaining 189 completed questionnaires, 53 companies failed to return questionnaires and replacements were secured in this way.

Adhering to the same procedures followed for Pilot Studies (1) and (2) to contact participants and send out questionnaires (described in Section 3.3.5), all 189 questionnaires were eventually returned, checked for completion, and any queries taken up with the person having undertaken the completion process.

3.6 **Data Acquisition, Coding and Entry into SPSS for Windows**

As each questionnaire was available for data entry, the information it contained was extracted, coded and entered onto SPSS.

The data were analysed using *SPSS for Windows*, which has the ability to subject a data set to a wide range of statistical analysis and tests of significance (Kinnear and Gray, 1994). Within the Data Editor Window, a grid was developed into which the data could be entered.

Table 3.2 is a printout of a data entry page. Reading from left to right the columns show the individual company identifying case number, Standard Industrial Classification Code, number of personnel employed, and which of the three numbers employed groups i.e. 1-99 (Group 1), 100-499 (Group 2), 500 and above (Group 3), companies belonged. Each question number follows these. Answers to each question
were entered as 0 for 'No', 1 for 'Yes', and where no response was given, no entry was made. The printout identifies company numbers 1 to 21, and the answers given to questions 1(a) (i)-(xi) (shown as DA1-DA11), 1(b), with up to a possible ten different answers (shown as DB1-DB10), and questions 2(a), 2(b) and 2(c) (shown as E2A, E2B and E2C).

3.7 A Critical Review of the Questionnaire Design

Designed to provide answers to the research questions posed in Chapter Two. (p. 2 – 110), the Questionnaire (Appendix 7), sought to determine how companies plan for improvements, whether such improvements are related to company size and activity, and how far they set standards against which the success of improvement programmes can be measured. Having established precisely what the questions were to be, it was, therefore, important that within the questionnaire they were related to each other and were:

“Listed in a logical order, allowing for transition and flow, that is, for a smooth passage from one topic to the next, and avoiding distortions and problems”.

Furthermore, that they were:

“Interesting and relevant to the topic; above all, the presentation and structure of the questionnaire should make the respondents feel at ease and worthy, rather than the subject of a strict interrogation”. (Sarantakos. 1998).

More specifically, if the questionnaire is to meet its purpose, questions must:

- Address one subject only.
Be relevant to the research topic.
Be clear and simple.
Presented in such language as to be unambiguous.
Not be in such a form that respondents are encouraged to give a certain (desired) answer.

Taking these considerations into account, the structure of the eventual design is open to critical comment, for as Babbie (1995) has stated, “there is always the possibility – indeed the certainty – of error”. Did it, therefore, meet the objectives stated above and could it have offered more powerful data?

As previously stated (p. 3 –132), the questionnaire commenced with listing eleven elements of the safety culture and asked respondents to tick those that were considered to be relevant to their organisation. A Likert scale was used in Question 7 in which respondents were asked to assess the success achieved in implementing improvements based on poor, fair, good, excellent and not yet able to determine levels of success. In the same way, it would have been possible to gather data on the priority that respondents had attached to each element and their level of relevance. This could have been achieved by an initial priority rating on a 1 – 11 scale and including within that for each element, whether it was, for example, not relevant, relevant, highly relevant, or essential, to their organisation. However, although the potential for more detailed information did exist, it was the purpose of this question simply to ask which elements were relevant to them. Such information was, therefore, not directly relevant to the research and while interesting, if gathered, had the potential to detract from its true purpose.

Questions 4(d), 5(d) 6(b) and 8(b) are open-ended. The advantages against the disadvantages of such questions are well recorded. While they provide respondents with the opportunity to express themselves, they are also more difficult to answer.
There is, therefore, an increased possibility that they may not be completed, and that the information gathered will be more difficult to code.

Each of the above questions held potentially significant information in relation to the planning process. The question was, should respondents be given the opportunity to provide their own answers (and face the risk of some not answering), or should a number of the more likely/anticipated responses be listed in order that it would simply be a case of ticking those appropriate?

The decision was taken to keep the questions open-ended. This was on the basis that a higher quality of original information might be provided at the expense of numbers responding and the statistical significance that might consequentially need to be sacrificed.

3.8 Supplementary Research Study - Additional Information Requirement

Following the main research questionnaire, a supplementary questionnaire was undertaken to review obstacles to the safety development process encountered by respondents. The information required was essentially to review that already provided to Question 6(b) of the Full Survey Questionnaire (Appendix 7). This had asked respondents to, '... identify any significant difficulties encountered (if any) in meeting ... the standards set for improvements'. The response to this question was numerically poor and would, therefore, require substantiation if the responses were to have credibility.

Addressing the second dependant variable, a definitive response to Question 6(b) was sought by incorporating into the Supplementary Questionnaire, (Appendix 9), the ten answers given to Question 4(e) of Pilot Study (1) and 6(b) of both Pilot Study (2) and the Full Survey Questionnaire. It asked, in the context of meeting health and safety objectives, which items on the list had, in the experience of respondents, presented obstacles to
progress. It also gave respondents the opportunity to identify any additional difficulties encountered.

The questionnaire was sent to one company within each of the twenty-seven separate numbers employed sub-groups that are identified in Table 3.1. Random number selection was used to identify those to be asked to complete and being a simple tick off questionnaire, it was sent with a covering letter (Appendix 10), no telephone contact being considered necessary. In the event that any forms were not returned, the principle of sending the form to the company immediately preceding that originally selected was applied. Only 2 substitute companies were required in this way.

To accommodate the additional data available from this final study, within the SPSS Data Editor Window, the grid into which data was entered was extended with a further twenty columns.

As each completed questionnaire was received, the data it contained was extracted, coded and entered onto SPSS.

When all 189 completed questionnaires from the full study, and the twenty-seven subsequent tick off forms were received, a synopsis of the results of the findings were sent to all participants who had requested this information (this synopsis is shown in Appendix 11).
<table>
<thead>
<tr>
<th>COMPANY</th>
<th>SIC CODE</th>
<th>EMPLOYEES</th>
<th>GROUP</th>
<th>QUESTION NUMBERS</th>
</tr>
</thead>
</table>
CHAPTER FOUR – DATA ANALYSIS

4.1 Introduction

Data analysis of the 189 companies participating in the research was undertaken in two ways, as detailed below.

1) Company Size Ranges

Companies employing from 1 - 99 employees = 63 companies

Companies employing between 100 - 499 employees = 63 companies

Companies employing 500 + employees = 63 companies

See Table 4.1.

2) Company Activity Groups

Although data were collected for nine industrial activity groups, a separate analysis was not undertaken for each. To have done so would have meant having too many groups with too few employees, leading to potentially uninterpretable results. Although the mean of employee numbers was 1160.8, employees ranged from 7 to 29,000. On that basis, a method of combining the nine industrial activity groups into a meaningful number for data analysis was required.

The nine Company Industrial Activity Groups were, therefore, gathered into three clusters. These are identified below and represented in Table 4.1; the three divisions occurring as an indigenous result of the activities undertaken.
### Table 4.1 Identification of ‘Company Industrial Activity Groups’ and ‘Company Size Ranges’

*Figures shown in italics = total number of companies within each of the three ‘Company Industrial Activity Groups’*

<table>
<thead>
<tr>
<th>COMPANY INDUSTRIAL ACTIVITY GROUPS</th>
<th>COMPANY SIZE RANGES (BASED ON NUMBER OF EMPLOYEES)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1-99 Employees (No. of participating companies)</td>
</tr>
<tr>
<td>AGRICULTURE, FORESTRY &amp; FISHING</td>
<td>7</td>
</tr>
<tr>
<td>MINING</td>
<td>7</td>
</tr>
<tr>
<td>CONSTRUCTION</td>
<td>7</td>
</tr>
<tr>
<td>MANUFACTURING</td>
<td>7</td>
</tr>
<tr>
<td>TRANSPORTATION, COMMUNICATION &amp; PUBLIC UTILITIES</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>Total =105*</td>
</tr>
<tr>
<td>GROUP 2</td>
<td></td>
</tr>
<tr>
<td>WHOLESALE TRADE</td>
<td>7</td>
</tr>
<tr>
<td>RETAIL TRADE</td>
<td>7</td>
</tr>
<tr>
<td>GROUP 3</td>
<td></td>
</tr>
<tr>
<td>FINANCE, INSURANCE &amp; REAL ESTATE</td>
<td>7</td>
</tr>
<tr>
<td>BUSINESS SERVICES</td>
<td>7</td>
</tr>
<tr>
<td>TOTAL NUMBER OF COMPANIES (FOR EACH OF THE THREE 'COMPANY SIZE RANGES')</td>
<td>63</td>
</tr>
</tbody>
</table>
Company Activity Group 1 = 105 participating companies
(Being those companies engaged in the creation, provision, or transportation of goods and services, not otherwise covered under 2 and 3 below, and hereafter referred to as ‘manufacturing/service related companies’)

Company Activity Groups 2 = 42 participating companies
(Being those companies engaged in the ‘wholesale and retail trades’ and hereafter referred to as such)

Company Activity Group 3 = 42 participating companies
(Being those companies engaged in the finance, insurance and real estate, and business services, and hereafter referred to as ‘finance and business services’)

See Table 4.1.

Data analysis was undertaken to identify the extent to which planning and standard setting are being undertaken within organisations to secure health and safety objectives. Measurements were made separately against the three company size ranges, and three company activity groups. Using chi-square analysis, the resultant data could also be compared to identify whether company size and industrial activity have any bearing on the manner in which developments are being undertaken.

Unless stated otherwise, in all tables, the number of respondents relates to those who replied ‘yes’ to the relevant question, while percentages are derived from the number who replies ‘yes’ or ‘no’. It is noted that the number of respondents was frequently less than the total number in the relevant group.

In all tables N/S = ‘Not Significant’
4.2 Question 1 (a)

Questions were set against eleven elements that were predominantly identified by the Confederation of British Industry (1990) as contributing to the organisational development of health and safety. The final element of that survey was, however, considered to have been covered within the preceding elements and was replaced by:

“A positive commitment to safety is visible throughout the management chain.”

This was taken from a safety culture prompt-list produced by the Advisory Committee on the Safety of Nuclear Installations (HSC, 1993). Together with the other ten elements, they were felt to present respondents with a broad range of factors, each of which they would be able to relate to.

Respondents were, therefore, asked to tick which of the following they considered to be relevant to their organisation:

(i) Leadership and commitment from the Chief Executive.

(ii) Acceptance that it is a long-term strategy, which requires sustained effort and interest.

(iii) A policy statement which is realistic, yet identifies high expectations and is supported by codes of practice and safety standards.

(iv) Health and safety is managed and treated as are other corporate objectives and is properly resourced.
(v) It is a line management responsibility.

(vi) Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication.

(vii) Realistic and achievable targets should be set and performance measured against them.

(viii) Incidents should be thoroughly investigated.

(ix) Regular auditing of performance against standards must take place and deficiencies remedied promptly.

(x) Management must regularly review performance.

(xi) A positive commitment to safety is visible throughout the management chain.
Tables 4.2 and 4.3 identify the responses to the above elements. They are based on the three Company Size Ranges and three Company Activity Groups, respectively. The elements are listed in order of overall positive responses.

Table 4.2 Analysis of the Relevance to Organisations of the Elements of the Safety Culture (Analysis by Company Size Ranges)

<table>
<thead>
<tr>
<th>Element No.</th>
<th>1-99 EMP N=63</th>
<th>100-499 EMP N=63</th>
<th>500+EMP N=63</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>vi Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication</td>
<td>58 92.1</td>
<td>60 95.2</td>
<td>60 95.2</td>
<td>N/S</td>
</tr>
<tr>
<td>viii Incidents should be thoroughly investigated</td>
<td>57 90.5</td>
<td>57 90.5</td>
<td>59 93.7</td>
<td>N/S</td>
</tr>
<tr>
<td>i Leadership and commitment from the Chief Executive</td>
<td>54 85.7</td>
<td>53 84.1</td>
<td>57 90.5</td>
<td>N/S</td>
</tr>
<tr>
<td>ii Acceptance that it is a long term strategy which requires sustained effort and interest</td>
<td>53 84.1</td>
<td>51 81.0</td>
<td>59 93.7</td>
<td>N/S</td>
</tr>
<tr>
<td>iii A policy statement which is realistic, yet identifies high expectations and is supported by codes of practice and safety standards</td>
<td>48 76.2</td>
<td>49 77.8</td>
<td>58 92.1</td>
<td>.03825 *</td>
</tr>
<tr>
<td>xi A positive commitment to safety is visible throughout the management chain</td>
<td>53 84.1</td>
<td>49 77.8</td>
<td>50 79.4</td>
<td>N/S</td>
</tr>
<tr>
<td>x Management must regularly review performance</td>
<td>42 66.7</td>
<td>53 84.1</td>
<td>51 81.0</td>
<td>.04501 *</td>
</tr>
<tr>
<td>iv Health and safety is managed and treated as are other corporate objectives and is properly resourced</td>
<td>48 76.2</td>
<td>49 77.8</td>
<td>47 74.6</td>
<td>N/S</td>
</tr>
<tr>
<td>v It is a line management responsibility</td>
<td>40 63.5</td>
<td>45 71.4</td>
<td>59 93.7</td>
<td>.00021 ***</td>
</tr>
<tr>
<td>ix Regular auditing of performance against standards must take place and deficiencies remedied promptly</td>
<td>34 54.0</td>
<td>42 66.7</td>
<td>51 81.0</td>
<td>.00547 **</td>
</tr>
<tr>
<td>vii Realistic and achievable targets should be set and performance measured against them</td>
<td>30 47.6</td>
<td>31 49.2</td>
<td>51 81.0</td>
<td>.00010 ***</td>
</tr>
</tbody>
</table>

Significance of the Effects of Company Size: Key:  
* = Significant at 5% level  
** = Significant at 1% level  
*** = Significant at 0.1% level
### Table 4.3 Analysis of the Relevance to Organisations of the Elements of the Safety Culture (Analysis by Company Activity Groups)

<table>
<thead>
<tr>
<th>Element No.</th>
<th>Group 1 N=105</th>
<th>Group 2 N=42</th>
<th>Group 3 N=42</th>
<th>CHI-Squared Test:P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>vi Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication</td>
<td>98 93.3</td>
<td>39 92.9</td>
<td>41 97.6</td>
<td>N/S</td>
</tr>
<tr>
<td>viii Incidents should be thoroughly investigated</td>
<td>99 94.3</td>
<td>36 85.7</td>
<td>38 90.5</td>
<td>N/S</td>
</tr>
<tr>
<td>i Leadership and commitment from the Chief Executive</td>
<td>92 87.6</td>
<td>31 73.8</td>
<td>41 97.6</td>
<td>.00520**</td>
</tr>
<tr>
<td>ii Acceptance that it is a long term strategy which requires sustained effort and interest</td>
<td>87 82.9</td>
<td>37 88.1</td>
<td>39 92.9</td>
<td>N/S</td>
</tr>
<tr>
<td>iii A policy statement which is realistic, yet identifies high expectations and is supported by codes of practice and safety standards</td>
<td>91 86.7</td>
<td>33 78.6</td>
<td>31 73.8</td>
<td>N/S</td>
</tr>
<tr>
<td>xi A positive commitment to safety is visible throughout the management chain</td>
<td>83 79.0</td>
<td>32 76.2</td>
<td>37 88.1</td>
<td>N/S</td>
</tr>
<tr>
<td>x Management must regularly review performance</td>
<td>85 81.0</td>
<td>31 73.8</td>
<td>30 71.4</td>
<td>N/S</td>
</tr>
<tr>
<td>iv Health and safety is managed and treated as are other corporate objectives and is properly resourced</td>
<td>87 82.9</td>
<td>27 64.3</td>
<td>30 71.4</td>
<td>.04120*</td>
</tr>
<tr>
<td>V It is a line management responsibility</td>
<td>84 80.0</td>
<td>35 83.3</td>
<td>25 59.5</td>
<td>.01461*</td>
</tr>
<tr>
<td>Is Regular auditing of performance against standards must take place and deficiencies remedied promptly</td>
<td>76 72.4</td>
<td>25 59.5</td>
<td>26 61.9</td>
<td>N/S</td>
</tr>
<tr>
<td>vii Realistic and achievable targets should be set and performance measured against them</td>
<td>70 66.7</td>
<td>21 50.0</td>
<td>21 50.0</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Significance of the Effects of Company Activity: Key:  
* = Significant at 5% level  
** = Significant at 1% level
Question 1 (b)

Having identified those elements considered relevant to their organisation, respondents were asked to list up to a further five, not directly related to the CBI survey (1990), which were recognised as being important. Their replies are summarised in Table 4.4 below. Against each element are listed the percentage of respondents who identified each such additional element to be important, calculated from the total 189 participants in the research.

Table 4.4 Additional Elements Considered Important to the Organisational Development of Safety

<table>
<thead>
<tr>
<th>Additional Elements</th>
<th>% Identified By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Comprehensive health and safety training for all personnel to set standards and involve all</td>
<td>8</td>
</tr>
<tr>
<td>Production of risk/change management programmes</td>
<td>6</td>
</tr>
<tr>
<td>Employment of competent lead safety practitioners giving all adequate support</td>
<td>6</td>
</tr>
<tr>
<td>Effective H&amp;S Committee and informing/reporting of H&amp;S matters, incorporating staff suggestions and publicising improvements</td>
<td>5</td>
</tr>
<tr>
<td>Planning and establishment of in-house rules/procedures etc., and continuous enforcing of these</td>
<td>4</td>
</tr>
<tr>
<td>Safety awareness campaigns</td>
<td>3</td>
</tr>
<tr>
<td>Need to conduct Risk Assessments recognised by all</td>
<td>2</td>
</tr>
<tr>
<td>Initiatives to be fully resourced – finance/time</td>
<td>1</td>
</tr>
<tr>
<td>Staff to work to detailed method statements</td>
<td>1</td>
</tr>
<tr>
<td>Targets set for accident reduction and associated costs</td>
<td>1</td>
</tr>
</tbody>
</table>

4.3 Question 2

Subsequent questions explored the work that had been undertaken to integrate the elements identified from Questions 1(a) and 1(b), within the culture of each respondents organisation.
Question 2 explored how each respondent had undertaken this work, under the separate headings of *implementing*, *developing* and *maintaining* the elements. The analysis of replies is shown in Tables 4.5 and 4.6.

### Table 4.5 The Implementation, Development and Maintenance of Elements (Analysis by Company Size Ranges)

<table>
<thead>
<tr>
<th>Has Any Work Been Undertaken Within Your Organisation To:</th>
<th>1-99 EMP</th>
<th>100-499EMP</th>
<th>500+ EMP</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Implement the elements</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>46</td>
<td>73</td>
<td>53</td>
<td>86.9</td>
</tr>
<tr>
<td>Develop the elements</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>35</td>
<td>55.6</td>
<td>44</td>
<td>72.1</td>
</tr>
<tr>
<td>Maintain the elements</td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>41</td>
<td>65.1</td>
<td>49</td>
<td>80.3</td>
</tr>
</tbody>
</table>

Significance of effects of Company Size: *** Significant at 0.1% level.

### Table 4.6 The Implementation, Development and Maintenance of Elements (Analysis by Company Activity Groups)

<table>
<thead>
<tr>
<th>Has Any Work Been Undertaken Within Your Organisation To:</th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Implement the elements</td>
<td>95</td>
<td>91.3</td>
<td>31</td>
<td>75.6</td>
</tr>
<tr>
<td>Develop the elements</td>
<td>82</td>
<td>78.8</td>
<td>27</td>
<td>65.9</td>
</tr>
<tr>
<td>Maintain the elements</td>
<td>84</td>
<td>80.8</td>
<td>31</td>
<td>75.6</td>
</tr>
</tbody>
</table>

Significance of the effects of Company Activity: * Significant at 5% level.

### 4.4 Question 3

In Chapter 2, it was identified that the subject of the planning and development of health and safety related change is poorly represented in written material. In that connection, respondents were asked four questions relating to the assistance that was available to them when undertaking the improvements referred to in Question 2.
Question 3(a)

Respondents were asked to identify whether any reference material was available to assist them with the improvement process. The analysis of their replies is shown in Tables 4.7 and 4.8.

**Table 4.7 Reference Material Available to Assist with the Improvement Process (Analysis by Company Size Ranges)**

<table>
<thead>
<tr>
<th></th>
<th>1-99 EMP No.</th>
<th>1-99 EMP %</th>
<th>100-499EMP No.</th>
<th>100-499EMP %</th>
<th>500+ EMP No.</th>
<th>500+ EMP %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was any reference material available to assist you</td>
<td>29</td>
<td>60.4</td>
<td>41</td>
<td>75.9</td>
<td>50</td>
<td>82.0</td>
<td>.03606*</td>
</tr>
</tbody>
</table>

Significance of the effects of Company Size: * Significant at 5% level

**Table 4.8 Reference Material Available to Assist with the Improvement Process (Analysis by Company Activity Groups)**

<table>
<thead>
<tr>
<th></th>
<th>GROUP 1 No.</th>
<th>GROUP 1 %</th>
<th>GROUP 2 No.</th>
<th>GROUP 2 %</th>
<th>GROUP 3 No.</th>
<th>GROUP 3 %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was any reference material available to assist you</td>
<td>68</td>
<td>70.8</td>
<td>21</td>
<td>67.7</td>
<td>31</td>
<td>86.1</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Question 3(b)

Respondents were then asked to identify up to three documents found to be most helpful. The 120 responses to this question have been summarised under ten headings. These are shown in Table 4.9 and against each document/information source, have been identified the percentage of the 120 considering it to have been of assistance to them.
Table 4.9  Publications Found to be Helpful to Respondents in Undertaking the Health and Safety Improvement Process

<table>
<thead>
<tr>
<th>Publications Found To Be Helpful</th>
<th>% Identified by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and Safety Executive publications</td>
<td>53</td>
</tr>
<tr>
<td>Croner reference publications</td>
<td>42</td>
</tr>
<tr>
<td>Ridley/Tolley reference books</td>
<td>18</td>
</tr>
<tr>
<td>Industry specific guidance</td>
<td>17</td>
</tr>
<tr>
<td>Safety magazines</td>
<td>8</td>
</tr>
<tr>
<td>Training courses</td>
<td>6</td>
</tr>
<tr>
<td>Royal Society for the Prevention of Accidents publications</td>
<td>3</td>
</tr>
<tr>
<td>Head Office material</td>
<td>2</td>
</tr>
<tr>
<td>Insurance visits/reports</td>
<td>1</td>
</tr>
<tr>
<td>Computer software</td>
<td>1</td>
</tr>
</tbody>
</table>

Question 3(c)

On the basis that the management of change is not, as has been established from the review of the literature, a process well developed in the safety field, respondents were asked whether they had sought external help to assist with improvements. Responses to this question are identified in Tables 4.10 and 4.11.

Table 4.10  Was External Help Sought to Assist with Improvements?
(Analysis by Company Size Ranges)

<table>
<thead>
<tr>
<th>Did you seek any external help with improvements</th>
<th>1-99 EMP No.</th>
<th>%</th>
<th>100-499 EMP No.</th>
<th>%</th>
<th>500+ EMP No.</th>
<th>%</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you seek any external help with improvements</td>
<td>32</td>
<td>66.7</td>
<td>38</td>
<td>69.1</td>
<td>32</td>
<td>52.5</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Table 4.11  Was External Help Sought to Assist with Improvements?
(Analysis by Company Activity Groups)

<table>
<thead>
<tr>
<th>Did you seek any external help with improvements</th>
<th>GROUP 1 No.</th>
<th>%</th>
<th>GROUP 2 No.</th>
<th>%</th>
<th>GROUP 3 No.</th>
<th>%</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Did you seek any external help with improvements</td>
<td>65</td>
<td>67.0</td>
<td>16</td>
<td>51.6</td>
<td>21</td>
<td>58.3</td>
<td>N/S</td>
</tr>
</tbody>
</table>
Question 3(d)

In order to determine when organisations had embarked on the improvements identified in Questions 2, they were asked to provide the date from which they began this work.

Data gathered from the questionnaires covered the 1960's, 1970's and 1980's, and separately, each year from 1991 to 1997. Their replies are presented in Figure 4.1 below (percentages have been calculated on the basis of 162 responses to this question).

Figure 4.1 Analysis of Dates from which the Implementation of the Development of the Elements of a Safety Culture Began

![Bar chart showing percentage by which improvement undertaken over different decades and years.](image-url)
CHAPTER FOUR

4.5 Question 4

Under Questions 4(a) - (4c), respondents were then asked how they had identified the need for improvements.

Table 4.12 Methods of Identifying the Need for Safety Improvements
(Analysis by Company Size Ranges)

<table>
<thead>
<tr>
<th>How Was The Need For Improvements Identified?</th>
<th>1-99 EMP No.</th>
<th>1-99 EMP %</th>
<th>100-499 EMP No.</th>
<th>100-499 EMP %</th>
<th>500+ EMP No.</th>
<th>500+ EMP %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>By reviewing existing practices</td>
<td>28</td>
<td>59.6</td>
<td>40</td>
<td>72.7</td>
<td>50</td>
<td>82.0</td>
<td>.03570*</td>
</tr>
<tr>
<td>By companies producing their own list of essential elements</td>
<td>28</td>
<td>60.9</td>
<td>31</td>
<td>56.4</td>
<td>41</td>
<td>67.2</td>
<td>N/S</td>
</tr>
<tr>
<td>By other methods</td>
<td>11</td>
<td>23.9</td>
<td>15</td>
<td>27.3</td>
<td>18</td>
<td>30.5</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Significance of the effect of Company Size: * Significant at 5% level

Table 4.13 Methods of Identifying the Need for Safety Improvements
(Analysis by Company Activity Groups)

<table>
<thead>
<tr>
<th>How Was The Need For Improvements Identified?</th>
<th>Group 1 No.</th>
<th>Group 1 %</th>
<th>Group 2 No.</th>
<th>Group 2 %</th>
<th>Group 3 No.</th>
<th>Group 3 %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>By reviewing existing practices</td>
<td>75</td>
<td>78.1</td>
<td>22</td>
<td>71.0</td>
<td>21</td>
<td>58.3</td>
<td>N/S</td>
</tr>
<tr>
<td>By companies producing their own list of essential elements</td>
<td>60</td>
<td>63.2</td>
<td>22</td>
<td>71.0</td>
<td>18</td>
<td>50.0</td>
<td>N/S</td>
</tr>
<tr>
<td>By other methods</td>
<td>25</td>
<td>26.9</td>
<td>8</td>
<td>25.8</td>
<td>11</td>
<td>30.6</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Question 4(d)

Those 44 respondents, who had used other methods to identify the need for improvements, were asked to indicate what these were. Their replies are summarised below.
Table 4.14 Other Methods Used to Identify the Need for Improvements.

<table>
<thead>
<tr>
<th>What Other Methods Were Used To Identify The Need For Improvement?</th>
<th>% identified</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consultant advice - internal/external</td>
<td>32</td>
</tr>
<tr>
<td>While implementing quality improvements</td>
<td>23</td>
</tr>
<tr>
<td>Internal health and safety auditing</td>
<td>20</td>
</tr>
<tr>
<td>HSE recommendations</td>
<td>18</td>
</tr>
<tr>
<td>Recognised need to keep in-step with legal requirements</td>
<td>16</td>
</tr>
<tr>
<td>Comparing safety performance with other organisations</td>
<td>9</td>
</tr>
<tr>
<td>Review of method statements</td>
<td>9</td>
</tr>
<tr>
<td>Issues arising from fatality/serious injury</td>
<td>7</td>
</tr>
<tr>
<td>Need to reduce employee liability insurance premiums</td>
<td>5</td>
</tr>
<tr>
<td>Recommendations of safety committees</td>
<td>5</td>
</tr>
</tbody>
</table>

4.6 Question 5

To explore the extent to which formal planning of development programmes was a part of the improvement process, Question 5 probed the level to which this had been undertaken.

Questions 5(a) and 5(b) asked whether a plan was produced for the implementation of each element, and whether it included timescales, persons with special responsibilities and other components. Furthermore, under Question 5(c), if they had answered ‘No’ to any one of the three options in Question 5(b), they were asked if doing so would have been of any assistance. The analysis of replies is given in Tables 4.15 and 4.16.
CHAPTER FOUR

Table 4.15 The Planning of the Implementation of Each Element of the Safety Culture (Analysis by Company Size Ranges)

<table>
<thead>
<tr>
<th></th>
<th>1-99 EMP No.</th>
<th>1-99 EMP %</th>
<th>100-499EMP No.</th>
<th>100-499EMP %</th>
<th>500+EMP No.</th>
<th>500+EMP %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was a plan produced?</td>
<td>19</td>
<td>39.6</td>
<td>33</td>
<td>60.0</td>
<td>43</td>
<td>70.5</td>
<td>.00481*</td>
</tr>
<tr>
<td>Did it include: (i) Timescales?</td>
<td>16</td>
<td>42.1</td>
<td>23</td>
<td>52.3</td>
<td>37</td>
<td>64.9</td>
<td>N/S</td>
</tr>
<tr>
<td>(ii) Persons with Special Responsibilities?</td>
<td>19</td>
<td>50.0</td>
<td>31</td>
<td>72.1</td>
<td>40</td>
<td>71.4</td>
<td>N/S</td>
</tr>
<tr>
<td>(iii) Other Components?</td>
<td>6</td>
<td>16.2</td>
<td>14</td>
<td>32.6</td>
<td>21</td>
<td>37.5</td>
<td>N/S</td>
</tr>
<tr>
<td>For those who answered ‘No’ would this have been of any assistance?</td>
<td>18</td>
<td>58.1</td>
<td>19</td>
<td>67.9</td>
<td>19</td>
<td>63.3</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Significance of the effects of Company Size: * Significant at 5% level

Table 4.16 The Planning of the Implementation of Each Element of the Safety Culture (Analysis by Company Activity Groups)

<table>
<thead>
<tr>
<th></th>
<th>Group 1 No.</th>
<th>Group 1 %</th>
<th>Group 2 No.</th>
<th>Group 2 %</th>
<th>Group 3 No.</th>
<th>Group 3 %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Was a plan produced?</td>
<td>58</td>
<td>59.8</td>
<td>16</td>
<td>51.6</td>
<td>21</td>
<td>58.3</td>
<td>N/S</td>
</tr>
<tr>
<td>Did it include: (i) Timescales?</td>
<td>46</td>
<td>53.5</td>
<td>15</td>
<td>62.5</td>
<td>15</td>
<td>51.7</td>
<td>N/S</td>
</tr>
<tr>
<td>(ii) Persons with Special Responsibilities?</td>
<td>54</td>
<td>65.1</td>
<td>16</td>
<td>66.7</td>
<td>20</td>
<td>66.7</td>
<td>N/S</td>
</tr>
<tr>
<td>(iii) Other Components?</td>
<td>25</td>
<td>30.1</td>
<td>7</td>
<td>29.2</td>
<td>9</td>
<td>31.0</td>
<td>N/S</td>
</tr>
<tr>
<td>For those who answered ‘No’ would this have been of any assistance?</td>
<td>39</td>
<td>70.9</td>
<td>8</td>
<td>47.1</td>
<td>9</td>
<td>52.9</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Question 5(d)

Those 41 respondents, who stated that other components were included within their plans, were asked to identify what they were. Their replies are identified in Table 4.17 below.
Table 4.17 Additional Components Identified by Respondents

<table>
<thead>
<tr>
<th>Additional Components Included Within Plans</th>
<th>% Identified by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Improvements plan to be comprehensive and to identify all key players, including H&amp;S Committee and safety representatives and communicating safety to all staff</td>
<td>32</td>
</tr>
<tr>
<td>Regularly reviewing progress against targets (either internal or external personnel) and recording progress</td>
<td>22</td>
</tr>
<tr>
<td>Training, including persuasion</td>
<td>20</td>
</tr>
<tr>
<td>Need for auditing</td>
<td>17</td>
</tr>
<tr>
<td>Identifying necessary budget and other resource allocations</td>
<td>15</td>
</tr>
<tr>
<td>Reducing lost time through accidents</td>
<td>10</td>
</tr>
<tr>
<td>H&amp;S integrated with other company improvement plans</td>
<td>10</td>
</tr>
<tr>
<td>Involvement of all employees</td>
<td>7</td>
</tr>
<tr>
<td>Meeting all 11 safety culture requirements</td>
<td>5</td>
</tr>
<tr>
<td>Guidance on objectives</td>
<td>5</td>
</tr>
</tbody>
</table>

4.7 Question 6

Question 6(a) asked whether standards were set against which it might be possible to measure the progress or success of each element. The analysis of those who replied ‘Yes’ are shown in Tables 4.18 and 4.19 below.

Table 4.18 The Level of Standard Setting Against which Progress or the Success of Each Element Could be Measured (Analysis by Company Size Ranges)

<table>
<thead>
<tr>
<th>Were Standards Set?</th>
<th>1-99 EMP No.</th>
<th>1-99 EMP %</th>
<th>100-499EMP No.</th>
<th>100-499EMP %</th>
<th>500+ EMP No.</th>
<th>500+ EMP %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>7</td>
<td>14.6</td>
<td>15</td>
<td>27.3</td>
<td>30</td>
<td>50.0</td>
<td>.00030 ***</td>
</tr>
</tbody>
</table>

Significance of the effects of Company Size: *** Significant at 0.1% level.
Table 4.19  The Level of Standard Setting Against which Progress or the Success of Each Element Could be Measured
(Analysis by Company Activity Groups)

<table>
<thead>
<tr>
<th></th>
<th>Group 1</th>
<th>Group 2</th>
<th>Group 3</th>
<th>CHI-Squared</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Were Standards Set?</td>
<td>31</td>
<td>32.0</td>
<td>8</td>
<td>25.8</td>
</tr>
<tr>
<td></td>
<td>13</td>
<td>37.1</td>
<td>N/S</td>
<td></td>
</tr>
</tbody>
</table>

Question 6(b)

Respondents were also asked to identify any significant difficulties encountered in meeting these standards. Data drawn from the 52 who responded to this question is presented in Table 4.20.

Table 4.20  Difficulties Encountered by Respondents in Meeting the Standards Set to Measure the Progress or Success of Each Element.

<table>
<thead>
<tr>
<th>Difficulties Encountered</th>
<th>% Identified by N=52</th>
</tr>
</thead>
<tbody>
<tr>
<td>Resistance to change</td>
<td>27</td>
</tr>
<tr>
<td>Inadequate resources</td>
<td>23</td>
</tr>
<tr>
<td>Acceptance of responsibility/ownership</td>
<td>15</td>
</tr>
<tr>
<td>Inadequate standard setting</td>
<td>13</td>
</tr>
<tr>
<td>Difficulty of achieving consistency across the organisation</td>
<td>12</td>
</tr>
<tr>
<td>Maintaining momentum and commitment to initiatives</td>
<td>10</td>
</tr>
<tr>
<td>Level of competence within the organisation not up to the demands</td>
<td>8</td>
</tr>
<tr>
<td>Difficulties created by accommodating new legislation/keeping abreast of new guidance</td>
<td>6</td>
</tr>
<tr>
<td>Subject not seen as important</td>
<td>6</td>
</tr>
<tr>
<td>Problems with managing priorities</td>
<td>6</td>
</tr>
</tbody>
</table>

4.8  Question 7

Question 7, 1a (i)-(xi) of the questionnaire (Appendix 7), asked respondents to indicate how they assessed the success they had achieved in implementing the
improvements relating to each of the eleven elements of the safety culture. They had originally identified those being considered relevant to their organisation, under Question 1(a). Under Question 7,1(b), (i) to (vi), they were also asked how they assessed the success achieved in implementing up to an additional six elements. They had originally identified those as being important to their organisation under Question 1(b). The responses given to Question 1 (b) were subsequently consolidated under ten headings and have been presented previously in Table 4.4.

Analysis of the success achieved in implementing the eleven improvements identified in Question 7,1(a) and the ten identified under 7,1(b) was, as with earlier questions, undertaken on the basis of the three company size groups, and the three company activity groups. Respondents were asked to rate the success they had achieved in implementing improvements to each element, under one of the following:

- Poor
- Fair
- Good
- Excellent
- Not yet determined

The method of analysis to compare all answers to Question 7 was the Mann-Whitney U test.

Analysis of the three company size groups identified statistically significant differences in Questions 7,1(a)(iv), 7,1(a)(vi), 7,1(a)x, and 7.1(a)(xi). Each are represented in the histograms shown as Figures 4.2 - 4.5 below. A precise breakdown of the responses to the remaining seven questions is given in Appendix 12.
Analysis of the three company activity groups established no statistically significant differences. However, a precise breakdown of the responses to the eleven questions is given in Appendix 13.

Figure 4.2 Analysis of Question 7.1(a) (iv):

*Health and safety is managed and treated as are other corporate objectives and is properly resourced.*

<table>
<thead>
<tr>
<th>percentage</th>
<th>poor</th>
<th>fair</th>
<th>good</th>
<th>excellent</th>
<th>n.y.d.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 100 employees</td>
<td>40%</td>
<td>30%</td>
<td>60%</td>
<td>10%</td>
<td>n.y.d.</td>
</tr>
<tr>
<td>100-499 employees</td>
<td>45%</td>
<td>40%</td>
<td>50%</td>
<td>15%</td>
<td>n.y.d.</td>
</tr>
<tr>
<td>500+ employees</td>
<td>50%</td>
<td>45%</td>
<td>60%</td>
<td>20%</td>
<td>n.y.d.</td>
</tr>
</tbody>
</table>

n.y.d: not yet determined

<table>
<thead>
<tr>
<th>Comparison of company size</th>
<th>Mann-Whitney U test:</th>
<th>More successful size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small vs Medium</td>
<td>p-value</td>
<td>Medium</td>
</tr>
<tr>
<td>Small vs Large</td>
<td>0.0138</td>
<td>N/A</td>
</tr>
<tr>
<td>Medium vs Large</td>
<td>N/S</td>
<td>Medium</td>
</tr>
</tbody>
</table>

4 - 161
Figure 4.3 Analysis of Question 7, 1(a) (vi):

Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication.

Percentage

<table>
<thead>
<tr>
<th>Score</th>
<th>Less than 100 employees</th>
<th>100-499 employees</th>
<th>500+ employees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Poor</td>
<td>10</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Fair</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Good</td>
<td>30</td>
<td>30</td>
<td>30</td>
</tr>
<tr>
<td>Excellent</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>N.Y.D.</td>
<td>50</td>
<td>50</td>
<td>50</td>
</tr>
</tbody>
</table>

n.y.d.: not yet determined

Comparison of company size

<table>
<thead>
<tr>
<th>Size Comparison</th>
<th>Mann-Whitney U test: p-value</th>
<th>More successful size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small vs Medium</td>
<td>0.0319</td>
<td>Medium</td>
</tr>
<tr>
<td>Small vs Large</td>
<td>N/S</td>
<td>N/A</td>
</tr>
<tr>
<td>Medium vs Large</td>
<td>0.0144</td>
<td>Medium</td>
</tr>
</tbody>
</table>
Figure 4.4 Analysis of Question 7,1 (a) (x):

Management must regularly review performance

n.y.d.: not yet determined

Comparison of company size

<table>
<thead>
<tr>
<th>Size Combination</th>
<th>Mann-Whitney U test: p-value</th>
<th>More successful size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small vs Medium</td>
<td>N/S</td>
<td>N/A</td>
</tr>
<tr>
<td>Small vs Large</td>
<td>N/S</td>
<td>N/A</td>
</tr>
<tr>
<td>Medium vs Large</td>
<td>0.0009</td>
<td>Medium</td>
</tr>
</tbody>
</table>

CHAPT E R FOUR
Figure 4.5 Analysis of Question 7.1 (a) (xi):

* A positive commitment to safety is visible throughout the management chain

<table>
<thead>
<tr>
<th>Comparison of company size</th>
<th>Mann-Whitney U test: p-value</th>
<th>More successful size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Small vs Medium</td>
<td>N/S</td>
<td>N/A</td>
</tr>
<tr>
<td>Small vs Large</td>
<td>0.0310</td>
<td>Small</td>
</tr>
<tr>
<td>Medium vs Large</td>
<td>0.0001</td>
<td>Medium</td>
</tr>
</tbody>
</table>
4.9 Question 8

Question 8(a) asked respondents whether, with the benefit of hindsight, they would have approached the organisational development of health and safety in any different manner.

Table 4.21 Companies Who Identified They Would Have Approached Development Differently
(Analysis by Company Size Ranges)

<table>
<thead>
<tr>
<th></th>
<th>1-99 EMP No.</th>
<th>1-99 EMP %</th>
<th>100-499 EMP No.</th>
<th>100-499 EMP %</th>
<th>500+ EMP No.</th>
<th>500+ EMP %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you have approached development any differently?</td>
<td>12</td>
<td>26.1</td>
<td>16</td>
<td>30.8</td>
<td>19</td>
<td>31.7</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Table 4.22 Companies Who Identified They Would Have Approached Development Differently
(Analysis by Company Activity Groups)

<table>
<thead>
<tr>
<th></th>
<th>Group 1 No.</th>
<th>Group 1 %</th>
<th>Group 2 No.</th>
<th>Group 2 %</th>
<th>Group 3 No.</th>
<th>Group 3 %</th>
<th>CHI-Squared Test: P-Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Would you have approached development any differently?</td>
<td>30</td>
<td>32.6</td>
<td>8</td>
<td>25.8</td>
<td>9</td>
<td>25.7</td>
<td>N/S</td>
</tr>
</tbody>
</table>

Question 8(b)

Those 47 respondents, who had stated that they would have approached organisational development differently, were asked what that would have involved. They identified the following:
Table 4.23  Action Respondents Would Have Undertaken Differently

<table>
<thead>
<tr>
<th>What Would You Have Done Differently?</th>
<th>% Identified By</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear development plan laid out at initial stage, with identification of objectives/targets to be met – include quality and environment where appropriate</td>
<td>60</td>
</tr>
<tr>
<td>Emphasise/develop ownership/commitment at all levels within the organisation</td>
<td>21</td>
</tr>
<tr>
<td>Produce a training programme based on identified needs</td>
<td>21</td>
</tr>
<tr>
<td>Communicate and make relevant to all, initiatives in a meaningful manner</td>
<td>17</td>
</tr>
<tr>
<td>Responsibilities must be clearly defined</td>
<td>15</td>
</tr>
<tr>
<td>Appoint competent H&amp;S personnel, either internally or externally</td>
<td>11</td>
</tr>
<tr>
<td>Initiate an audit system</td>
<td>6</td>
</tr>
<tr>
<td>Initial planning of resources necessary</td>
<td>6</td>
</tr>
<tr>
<td>Realistic timescales must be set</td>
<td>4</td>
</tr>
<tr>
<td>Emphasise the key role of line management</td>
<td>2</td>
</tr>
</tbody>
</table>

4.10  Supplementary Questionnaire

A Supplementary questionnaire (Appendix 9) was distributed to review responses submitted under Question 6(b) of the original questionnaire (see Section 3.6). That had asked respondents to identify difficulties encountered in meeting the standards set to measure the progress or success of each element. Responses to that question have been identified in Table 4.20.

The Supplementary questionnaire was sent to one company (identified by random selection) from within each of the three Company Size Ranges, within each of the 9 industrial activity groups. A total of 27 questionnaires were, therefore, distributed.

A comparison of the priority of the responses to the Supplementary Questionnaire, compared to that of the original questionnaire, is shown in Table 4.24.
### Table 4.24 Identification of Obstacles to Progress

<table>
<thead>
<tr>
<th>Obstacles to Progress</th>
<th>Main Questionnaire (No. of participants = 52)</th>
<th>Final Questionnaire (No of participants = 27)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>No.</td>
<td>%</td>
</tr>
<tr>
<td>Resistance to change, either from individuals or groups</td>
<td>14</td>
<td>27</td>
</tr>
<tr>
<td>Allocation of inadequate resources – time/funding/supporting documentation etc.</td>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>Failure of individuals to accept responsibility/ ownership of health and safety</td>
<td>8</td>
<td>15</td>
</tr>
<tr>
<td>Inadequate standard/ objective setting</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>Difficulty of achieving consistency of progress throughout the organisation</td>
<td>6</td>
<td>12</td>
</tr>
<tr>
<td>Maintaining momentum of, and commitment to, initiatives</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>The competence of individuals charged with specific responsibilities proved inadequate</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>Health and safety not considered as relevant/ important to managerial/ operational personnel</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Difficulty of keeping abreast/being aware of new legislation</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Difficulty of managing health and safety as well as other work priorities</td>
<td>3</td>
<td>6</td>
</tr>
</tbody>
</table>
CHAPTER FIVE - GENERAL OBSERVATIONS AND DISCUSSION

5.1 Introduction

In Chapter Two (p. 2 – 110), the research questions were defined as seeking to establish, against a background of limited guidance being available on the subject of health and safety development planning:

1. To what extent, and in what way, do British Companies plan for Health and Safety improvements?

2. Is planning for Health and Safety improvement related to company size or industrial activity?

3. Are Companies setting standards in their Health and Safety Improvement Programmes against which the success of change can be measured?

An analysis and evaluation of the significant findings of the information gathered from the literature reviewed in Chapter Two, and the data analysed in Chapter Four, will now be drawn together in order that these questions can be addressed and considered against the author’s Integrated Model of Change. The findings are presented initially in the form of a number of general observations. By then analysing and assessing the data attained from the research questionnaire against the key stages of the development process contained in the Integrated Model, it will be possible to identify where deficiencies exist in current development methodology. These deficiencies will be used to illustrate the role of the model in future strategic and lower scale development planning.

The need for brevity dictated that it would not be possible for the questionnaire to cover each of the four phases, and their sub-sections, of the Integrated Model. It was, therefore, directed towards the first two phases of Exploration and Planning, which did.
nevertheless, permit the data collection required to establish the extent to which organisations are undertaking formally planned developments. Each investigative stage covered in this Chapter includes a review of the relationship that company size and industrial activity have on the level of planning undertaken. Where deficiencies are established, either in relation to company size or industrial activity, or the planning stages of development, consideration is given to where these may be related to the quality of the development methodology currently available and how they should be addressed. Also, what implications the model of change, supported by the research findings, have for current safety development theory and practice.

Taken into account in the analysis, and identified, are the limitations of the study itself.

Unless otherwise stated, the percentages quoted are derived from the information contained within the tables in Chapter Four.

5.2 General Observations

From an initial review of the data analysis, a number of general observations may be made. These are helpful in broadly setting the scene for the detailed interpretation of the data that is to follow. They also serve to provide some preliminary indication of the value of the findings against the original research objectives.

1 The larger the company size, the more likely it was that the relevance of the recognised elements of the safety culture were acknowledged, together with the work that was undertaken to implement, develop and maintain them. Within the three sub-groups of the company size ranges, significant statistical differences were identifiable. Such differences were not a feature associated with company industrial activity.
The production of development plans, and including within them components such as timescales to be followed and persons with special responsibilities, were found to be related to company size.

While the larger companies were seen to take the lead in this development process, no such clarity was evident in the case of the industrial activity groups.

The majority of respondents acknowledged that reference material was available to assist them with the development process, although they were generally unable to identify those documents found to be most helpful. Nevertheless, they did refer to ten information sources that largely fail to provide direct guidance on management of change issues.

A significant level of external help was sought to assist with improvements, being undertaken to an almost identical level, irrespective of company size and industrial activity.

However, the level of standard setting undertaken, and moderate success achieved by respondents in implementing improvements, raises the question of the competence of those advising on change management issues.

Those respondents who had set standards by which the progress or success of improvements could be measured were asked to specify the difficulties they had encountered in meeting them. In the supplementary questionnaire, the limited number of respondents participating were asked to list which of the ten difficulties originally identified, they had found to be a problem.

Comparison of the order of significance of the ten originally identified, against those from the supplementary questionnaire, showed a number of very clear similarities as well as differences.
While the majority of respondents considered that the success they had achieved fell into the main category of ‘good’, a lesser number believed that they had achieved ‘fair’, followed by ‘excellent’ levels of success.

On that basis, there appeared to be some failure in recognising the benefits that might be gained by approaching change in a different manner, and in doing so potentially achieving higher levels of success.

Respondents were asked if, in the light of their experiences, they would have approached development in a different manner.

The number of responses was similar across the company size ranges and industrial activity groups, with a low percentage considering that they would have undertaken the change process differently. However, it is unknown to what extent they had actually considered the benefits of a different approach.

Improvements relating to the development of a safety culture (a concept little understood until the 1990’s) were negligible during the 1960’s and 1970’s. A slight rise was discernible in the following decade, and a marked increase evident during the period 1990 to 1996.

The rapid development in safety improvements, and poor level of standard setting accompanying the development process, raises the question of whether organisations have been adequately prepared to undertake this development.

5.3 Discussion – Establishing the Extent to Which Development Planning is Being Undertaken

The Discussion section of this Chapter begins with an analysis of the information gathered to provide an understanding of the extent to which development planning is
being undertaken. It does this by establishing the importance to employers of the elements of the safety culture, and proceeds to assess how they are identifying the need for the development of these elements. It then identifies the information and assistance available to them when undertaking such improvements.

Having provided this initial focus for analysis and evaluation, the investigation proceeds to explore the factors motivating such developments and to then centre on the key research objective of identifying the degree to which the planning of change programmes is taking place. Specifically, it looks at the extent to which performance standards are being set and the success that is being achieved within the limitations of the generally known, current development methodology. The information thus gathered will be compared with the key phases of the Integrated Model of Change. Deficiencies identified will demonstrate the value of the model in future development planning.

5.3.1 The Basis for Measurement

While the elements of the safety culture are not an integral part of the planning process they are, nevertheless, recognisable and relevant to most employers, being emblematic of those areas in which health and safety development are required within organisations. On the basis that the methodologies employed in planning their implementation should be representative of those utilised for the preparation of other key areas of health and safety development/change, they were considered to provide a sound measure against which could be assessed the processes involved in developments. Also, to assist to provide answers to the research questions.

This foundation work leading to an analysis of the stages being included in planning, involved the two areas of investigation of:

- Establishing the relevance of the elements of the safety culture.
CHAPTER FIVE

• Determining the work being undertaken to implement, develop, and maintain these elements.

From this point in the investigative procedure it would, therefore, be possible to analyse how, and the level to which the planning of the implementation of the elements (and those additional identified by respondents) was being undertaken, and the steps that were involved.

*The Relevance of the Elements of the Safety Culture and Relationship with Company Size and Industrial Activity*

Tables 4.2 and 4.3 contain the analysis of the information gathered from Question 1 of the Questionnaire (Appendix 7). Across the three sub-groups of the company size ranges and industrial activity groups, the average percentage levels to which all eleven elements of the safety culture were considered relevant was as detailed below.

*For the Company Size Ranges*

Companies with 1-99 employees: 75%;

Companies with between 100 and 499 employees: 78%;

Companies with 500 and above employees: 87%.

*For the Industrial Activity Groups*

Companies engaged in manufacturing and associated industries: 82%;

Companies engaged in the wholesale and retail trades: 75%;
Companies engaged in finance and business services: 78%.

Although it was not a research objective, from the replies of the 189 participating companies could be determined the order of popularity, or relevance, of the elements. The descending order of their popularity was as detailed below.

Applicable to averages of 94% and 92% of respondents respectively were:

a) Ownership of health and safety must permeate all levels of the workforce. (element vi)

b) Incidents should be thoroughly investigated. (element viii)

Each of the above were broadly relevant at the same percentage level for each of the sub-groups of the company size ranges and industrial activity groups. However, for the remaining nine, as will be seen, a number of statistically significant differences exist within the percentages quoted above.

Applicable to averages of between 87% and 76% of respondents were the following seven:

c) Leadership and commitment from the Chief Executive.
In the 1990 CBI survey, ‘Leadership and commitment from the top …’, was identified as being the most important of the eleven. This has been reaffirmed in subsequent literature (Andriessen, J. 1978; Simard, M. and Marchand, A. 1995), together with the link existing between workers perceptions of the commitment and leadership of senior management and their own motivation to behave safely (see also element f) below). (element i)
d) Acceptance that it is a long-term strategy, which requires sustained effort and interest. (element ii)

e) A policy statement, which is realistic, yet identifies high expectations and is supported by codes of practice and safety standards. (element iii)

f) A positive commitment to safety is visible throughout the management chain. (element xi)

g) Management must regularly review performance. (element x)

h) Health and safety is managed and treated as are other corporate objectives and is properly resourced. (element iv)

i) It is a line management responsibility. (element v)

Within the company size ranges (Table 4.2), the trend was for the largest companies, followed by the medium, to have a greater recognition of their significance than did the group of smallest companies. This was statistically significant for element iii (relating to the policy statement) at the 5% level, and particularly marked for v (health and safety being a line management responsibility) at the 0.1% level. ix and vii (regular auditing against standards and realistic and achievable targets being set and performance being measured against them), were also most appropriate to the largest companies, with statistically significant differences between them and the medium, followed by the group of smallest companies, at the 1% and 0.1% level respectively. However, x (management must regularly review performance) was the exception, being most applicable to the medium sized companies, with a statistically significant difference between them and the smallest at the 5% level.
Within the industrial activity groups (Table 4.3), no single group was predominant in recognising their relevance. Those companies engaged in finance and business services believing i (leadership and commitment from the top) to be most relevant, with a statistically significant difference between those engaged in the wholesale and retail trades at the 1% level. iv (health and safety being managed and treated as are other corporate objectives), was considered most relevant by companies in the manufacturing and associated industries, with a statistically significant difference between those in the wholesale and retail trades at the 5% level. v (health and safety being a line management responsibility), was most relevant to those in the wholesale and retail trades, with a statistically significant difference between those engaged in finance and business services at the 5% level.

While each of the above elements will be seen to have a link with the planning process, the lowest in ranking, and applicable to averages of 67% and 59% of respondents respectively were j) and k) below. Each is particularly relevant to this research because they are of direct importance to the planning process and relate to the mechanisms necessary for the successful introduction of developments and the attainment of specific objectives

j) Regular auditing of performance against standards must take place and deficiencies remedied promptly. (element ix)

k) Realistic and achievable targets should be set and performance measured against them. (element vii)

Each of these were most appropriate to the largest companies, with highly statistically significant differences between them and the medium, followed by the group of smallest companies, at the 1% and 0.1% level respectively. No statistically significant differences existed in respect of company industrial activity.
The eleven elements group into three clusters. \textit{vi} and \textit{viii} are first, each of which are highly practical in nature. \textit{i}, \textit{ii}, \textit{iii}, \textit{xi}, \textit{iv} and \textit{v} are second, each of which relate to the organisation of safety. Third and lowest in order, and as has been seen, each relating directly to the planning process, are \textit{ix} and \textit{vii}. Does the lower level of recognition seen in the need for regular auditing of performance against standards, with deficiencies remedied promptly and realistic and achievable targets being set and performance measured against them, provide an initial indication that a naivety may exist in the planning process, particularly for the smallest and medium sized companies? Answers will be found in the analysis that is to follow in this Chapter.

While respondents did identify ten additional components considered important to their organisations (Table 4.4), the limited number that did so renders them of little statistical value. However, the most relevant, recognised by between 80\% - 5\% of organisations were, in descending order of priority:

- Comprehensive health and safety training for all personnel, directed towards the achievement of standard setting and the involvement of all.

- Production of risk/change management programmes.

- Employment of competent lead safety practitioners giving all adequate support.

- Effective H&S committee and informing/reporting of H&S matters, incorporating staff suggestions and publicising improvements.

It is of note that the first three of the above are directly related to the planning of improvements.
CHAPTER FIVE

The significant average percentage levels of recognition of the eleven elements provide an initial indication that they form a sound basis for questioning the manner in which the planning of change programmes, and the stages involved, is being undertaken.

_The Work Undertaken to Implement, Develop and Maintain the Elements of the Safety Culture_

If it can be demonstrated that the implementation, development and maintenance of the elements of the safety culture took place to broadly similar levels to those to which they were considered relevant, then they will form a firm foundation for the subsequent stages of the questionnaire investigation. This information is also necessary in order to initially, and very broadly, determine the level of formality applied to their improvement, before progressing to a review of the component parts of the Exploration and Planning phases of the Integrated Model of Change. Furthermore, those organisations in which the elements were identified as having been implemented will later be compared with the number having done so according to a plan. In this way it will be possible to determine whether the predominant method by which improvements were undertaken was by formal planning, or being permitted to evolve, essentially via the emergent process of change. Both approaches were considered in depth in Chapter Two.

Tables 4.5 and 4.6 contain the analysis of the information gathered from Question 2 of the Questionnaire. From these it was established that across the company size ranges and industrial activity groups, 86% of respondents claimed to have implemented, 74% to have developed, and 79% to have maintained, at least some of the elements of the safety culture. That little statistical difference exists between implementation, development and/or maintenance, indicates that in most instances in which improvements are embarked upon, they are subsequently either developed, and/or at least maintained, to notable levels. Furthermore, for each of the three sub-groups within the company size
ranges and industrial activity groups, the average percentage levels to which they had been implemented, developed and maintained, was as detailed below.

For the Company Size Ranges:

- Companies with 1-99 employees: 65%
- Companies with between 100 and 499 employees: 80%
- Companies with 500 and above employees: 94%

For each of these three stages of improvement, the higher level of work undertaken by the group of largest employers was reflected in highly statistically significant differences when compared with the smallest, at the 0.1% level. In the case of development, the statistical difference extends to employers with between 100-499 employees.

For the Industrial Activity Groups:

- Companies engaged in manufacturing and associated industries: 84%
- Companies engaged in the wholesale and retail trades: 72%
- Companies engaged in finance and business services: 76%

A statistically significant difference exists only in respect of implementation. While 91.3% of companies engaged in manufacturing and associated industries did so, the lower level undertaken by those in the wholesale and retail trades, and finance and business services, is reflected in a statistically significant difference at the 5% level.
Only a minority of companies had not implemented at least some of the elements. Most marked was the group of smallest companies, of which 27% failed, while did 13% of the medium, but only around 3% of the largest organisations. While there is clearly room for some improvement, it is perhaps less likely that those organisations that had not done so had no intention to act, rather that they were unaware of the need, or were not yet prepared to do so.

Summary of the Relevance, and the Developmental Work Being Undertaken, Relating to the Elements of the Safety Culture

While the relevance of the elements can be seen to be high across the company size ranges, with one statistically significant exception, it was the largest companies, followed by the medium, which considered them to be of most relevance. Analysis based on industrial activity shows that this has no bearing on the level to which they were considered important, and where statistically significant differences exist, no group is predominant in giving them priority. Furthermore, the two elements ranked lowest in order of popularity or priority were both directly related to the planning process.

Repeating the pattern seen with the relevance of the elements, within the company size ranges, it was the largest companies, followed by the medium that had undertaken their implementation, development and maintenance to the highest level. Furthermore, the statistically significant differences existing between these two groups and the smallest is highly pronounced at the 0.1% level. Within the industrial activity groups, the only clearly discernible pattern is in the case of implementation. Undertaken to the highest level by companies engaged in the manufacturing and associated industries, and to the lowest by those in the wholesale and retail trades, it is reflected in a statistically significant difference at the 5% level.

As with the identified relevance of the elements of the safety culture (p. 5 – 173), the work that was undertaken to implement, develop and maintain them (p. 5 – 178) was to
similar levels. The prominence attached to them and the similar level of work identified to have taken place to implement and improve them reflects the increasing attention they have received in health and safety literature, education, training and practice, throughout the 1990's. On that basis, it is believed that the methodologies employed in planning their implementation will be similar to other areas of health and safety change. For research purposes they were, therefore, considered to form a sound basis upon which to establish the degree of planning that is taking place to underpin diverse types of development programmes.

5.3.2 The Exploration Phase of Development Planning

Having determined the significance of the elements of the safety culture and the level to which they were implemented, developed, and maintained, each being assessed against the company sizes ranges and industrial activity groups, an examination of the transition to the planning stages of their development was then undertaken. This transition, via the Exploration Phase of the author’s Integrated Model of Change, was reviewed in Chapter Two (Section 2.5.3), and seeks to diagnose the issues needing to be addressed, being gathered from the information that is flowing into, around, and out of the organisation. For the purposes of data collection previously described (p. 3-128), questions were in an amended format to that of the Integrated Model. Furthermore, on the basis that the elements of the safety culture already formed the basis for the research questions, a diagnosis of the specific issues to be addressed was not necessary under 1 below, and was omitted. This, therefore, led directly into an investigation of:

1. The Recognition of the Forces for Change at Work on the Organisation.

3 The External Help Being Sought to Assist with Improvements.

Each of these will be considered below.

**Recognition of the Forces for Change at Work on the Organisation**

The first requirement within the *Exploration Phase* of the *Integrated Model of Change* is for recognition to exist of the forces for change that are at work on an organisation. As discussed in Chapter Two (Section 2.3), in being cognisant of these forces, appropriate action may then be taken to diagnose and address the specific issues in need of attention. Examples given were the need to be aware of the requirement to review internal practices to determine whether they meet generally accepted, and essential, health and safety performance standards such as those collectively referred to as the elements of a safety culture. Also, to be cognisant of external pressures such as health and safety legislation, and that a failure to meet their requirements, with injury or death resulting, might not only result in prosecution, but also costly civil litigation.

How then is the need for improvement currently being identified? Questions 4(a)-(d) sought to determine how widely the range of factors influencing the need for change and, therefore, change planning, was motivating it. In this way, respondents were provided with the opportunity to identify both the internal and external pressures that may have been at work. Analysis of the answers should provide an indication of the extent to which these are recognised as exerting an influence on organisations and, therefore, whether they are responding to them. Also, whether auditing, traditionally recognised as the means of establishing the existing state of an organisation’s safety management systems and where innovations or improvements may be required, is considered to be a significant method of identifying the need for change. Furthermore, what, if any, other methods are being used.
It was found that across the company size ranges and industrial activity groups, 72% claimed to have identified the need for improvement by reviewing existing practices, 62% by producing their own list, and 28% by other methods (Tables 4.12 and 4.13). Statistically significant differences existed only in respect of reviewing existing practices against individual safety culture elements within the company size ranges. In this case, reflecting the pattern seen in Section 5.3.1, 82% of the largest companies did so compared with 59.6% of the smallest, a statistically significant difference at the 5% level. No statistically significant differences existed in relation to company industrial activity.

The 44 respondents who had used other methods to determine the need for improvements identified the following to be the most popular:

- Consultant advice obtained from both internal sources and from external specialists (32%).

- While implementing quality improvements and originating from both internal and external influences (23%).

- Internal health and safety auditing (20%).

- HSE recommendations (18%).

- A recognised need to keep in step with legal requirements (16%), and identified to be from both internal and external pressures.

The remaining five items, identified by between 9% - 5% of respondents are a similar influence of internal and external pressures (Table 4.14).
From this information it can be seen that the principal motivating force behind developments was organisations reviewing their existing practices against the individual elements of the safety culture. This is further evidence, already seen in Section 5.3.1, of their being aware of the significance of these to their organisation. Also, of the importance of actively reviewing safety management systems with a view to ensuring that they remain relevant and are improved. Statistically, this was followed closely by companies producing their own list of objectives based on what they considered to be necessary. This indicates recognition of the need to keep under review, and again relevant, health and safety issues and, therefore, of adopting a pro-active, rather than reactive approach. A lesser number of companies employed other means to identify the need for improvements. The five main methods that are listed above indicate a mixture of internal and external pressures, emphasising the importance of the external consultant, links with quality improvements, internal auditing (although not to a major level) and HSE/legal influences.

Only in the case of reviewing existing practices was there any statistically significant difference between the largest and smallest companies in the way they identified the need for improvements. No statistically significant differences existed across the company size ranges and industrial activity groups.

The Availability of Development Literature in Providing Assistance with the Improvement Process

It has been seen in Chapter Two, that specific health and safety literature addressing how planning the management of change is to be undertaken is extremely limited.

To investigate whether employers recognised this to be an inhibiting factor, Question 3(a) of the Research Questionnaire asked respondents what reference material was available to assist them in the health and safety improvement process. Across the company size ranges and industrial activity groups, between about 60% and 86% of companies considered that reference material was indeed available. Within the
company size ranges, with a statistically significant difference at the 5% level. The smallest group of companies believed material to be the least available, while the largest considered it to be most accessible (Table 4.7). Within the industrial activity groups, there were no statistically significant differences (Table 4.8).

Asked under Question 3(b) to list up to three documents found to be most helpful, respondents failed to list specific material but did cite the publishers of information. Considered to be the most helpful source, and identified by 53%, were Health and Safety Commission/Executive publications. 42% identified Croner Publications reference books. These were followed by 18% and 17% of respondents respectively identifying Ridley/Tolley reference books and industry specific guidance. A further six publication sources are shown in Table 4.9, being identified by between 8% and 1% of respondents.

It is of note that specific publications, other than Ridley/Tolley reference books, were not quoted and that the Health and Safety Commission/Executive, Croner, and other sources to which reference was made, indicate broadly the publishers, rather than any specific material used. However, as established in Chapter Two, publications produced from such organisations do not deal to any significant extent with the management of change and the planning stages involved, with the exception of BS 8800 (BSI, 1996). Furthermore, none of the publishers of documents dealing with organisational development/management of change issues that have been referred to in Chapter Two were quoted.

Information gathered from the survey population established that within the company size ranges, the larger the company, the more information was considered to be available to assist with the improvement process. The significantly lower level identified by companies with between 1 and 99 employees, was not, it is believed, reflective of a realisation that specific material was not available. Rather, it was more likely to be attributable to their having generally less access to information sources.
and individuals with specialist knowledge to gather and interpret it, than did the larger organisations.

Across all organisations participating in the research, the elevated levels to which it was considered that material was available is symptomatic of a failure to appreciate the significance of development planning and, therefore, the true content of the Health and Safety Commission/Executive and other publications. It is also a clear indication of this not being understood to be an inhibiting factor to development programmes, and reflects the dearth of information on the subject of recognising the need and including essential component parts, in the planning and implementation of health and safety change programmes. The wealth of information that is available, but is largely unknown to exist in the organisational development field, has been amply demonstrated. Will this lack of material and, therefore, knowledge, be reflected in the level of sophistication of planning arrangements and the success being achieved with change programmes? These issues will be explored later in Sections 5.3.3 and 5.3.4 respectively.

**The External Help Sought to Assist with Improvements**

The role of the change agent was reviewed in Chapter Two, from which it was evident that if change at the strategic or complex level is to succeed, an agent will be required who is conversant in the practice of change management/organisational development. Such an awareness at this level also has the effect of emphasising that if lower scale change is to succeed, then planning the process, albeit less intensively, will provide some assurance that programmes follow a designated and successful path. Furthermore, that potentially inhibiting factors are recognised and detected as they occur and are, therefore, managed.

Those trained and practised in the discipline of change management/organisational development will be seen to be largely restricted to major companies or consultancies.
For the majority of organisations, managing change is largely a process of trial and error and one for which safety practitioners, in common with most other branches of management, are poorly prepared. For the reasons of brevity already reviewed, within this research, it was not possible to explore the extent to which those managing the change process had been trained to do so. Since there are few opportunities within the professional training available to the safety practitioner to learn such skills, that would have been a largely fruitless task. It was, however, helpful to know whether this lack of internal expertise was reflected in organisations resorting to external help to assist with the development process. Question 3 (c) of the Questionnaire addressed this issue.

The data shows that across the company size ranges and industrial activity groups, 62% of companies had sought external help with their improvements and that no statistically significant differences existed with respect to company size or industrial activity (Tables 4.10 and 4.11). It might reasonably be presumed that the smallest, followed by the medium sized group of companies would have resorted to the use of external assistance to a greater extent than would the largest. This would have been on the basis of their generally having a lower level of internal help available. It was, therefore, not expected that their use would broadly be evenly distributed throughout industry. Possibly the lack of relevant material and training available was a major contributory factor, also that there was a presumption that external agents would possess change management planning skills and, therefore, be capable of achieving it more successfully. However, it has been seen that there is little evidence to suggest that this so, although it was outside the scope of the research to explore this issue further. Nevertheless, it clear that a significant percentage of the survey population recognised deficiencies in the expertise of their own personnel and of the consequential need to resort to the use of external assistance.

Summary of the Exploration Phase of Development Planning

A number of issues emerge from this information.
The factors motivating change have been identified to be a combination of pro-active internal and external influences. The predominant method in this study was respondents recognising the importance of the elements of the safety culture to their organisation and reviewing existing practices with a view to securing their improvement. Companies producing their own list of essential improvements, and in doing so recognising the need to keep under review and relevant, health and safety issues, followed this.

For those undertaking the health and safety improvement process, it has been observed that there is a distinct lack of guidance material and training available on change planning. However, this is not recognised by employers and their naivety is illustrated in the fact that the group of largest companies believed that literature was most available to assist with the development process. Further analysis revealed that the publishers they quoted had not produced specific material on the subject and there appears to be no recognition that this is a problem or inhibiting factor.

However, the fact that more than half of the survey population had sought external assistance with the development process provides an indication that within organisations, there is a presumption that external help is more capable of achieving change than are internal personnel. Nevertheless, the lack of health and safety related material and training available will, in most cases in which external health and safety consultants or specialists are engaged, mean they are little better prepared to deal with the subject than are an organisation’s own personnel. It is of note that the external help was fairly evenly distributed between the company size ranges and industrial activity groups.

In seeking to achieve improvements, the group of largest companies demonstrated a statistically significant priority over the medium and smallest groups in respect of their reviewing practices against the individual elements of the safety culture. In other respects, company size and industrial activity was not identified to be a significant feature associated with the Exploration Phase of development planning.
5.3.3 The Planning Phase of Development Planning

Having, therefore, determined the level to which organisations were aware of the requirement for health and safety improvements and how they were identifying the need, the key research objective of establishing how such improvements were being planned was then undertaken. As with the Exploration Phase of the Integrated Model of Change, for the purposes of data collection previously described (p. 3-130) it was also necessary for the research questions to be presented in an amended format. Analysis of the questionnaire data did, therefore, take place on the basis of the eight subject headings that follow.

The Plan

Throughout Chapter Two it was evident that if change is to succeed, those involved in its initiation and implementation will be presented with, and must address, a range of developmental issues. If they unaware of the implications of moving from the existing to the altered state and the processes for doing so are not understood, then it is unlikely that objectives will be achieved in a competent and effective manner. The formulation of a plan is, therefore, the key to this process and establishing the level to which such formal planning was being undertaken (p. 2-110) was a major objective of this research.

Investigation began with Question 5(a), which asked whether, for each element of the safety culture, a plan had been produced identifying how the implementation process would take place. Across the company size ranges and industrial activity groups, 58% of respondents claimed to have undertaken their improvements according to such a design. Of the group of largest companies, 70.5% did so and of the medium group, 60%. At 39.6%, the lower level to which companies with 1-99 employees did resulted in a statistically significant difference at the 5% level. Within the industrial activity groups, improvements were undertaken according to a plan to the highest level, by 59.8% of those engaged in the manufacturing and associated industries, and to the lowest level at
51.6%, by those in the wholesale and retail trades. The differences are not statistically significant.

A comparison of the percentage of companies that had implemented at least some of the elements, with the percentage that undertook their implementation according to a plan, provides a measure of the extent to which developments were claimed to have been undertaken on a formally programmed basis. It has been seen in Section 5.3.1 that across the three sub-groups of the company size ranges and industrial activity groups, 86% claimed to have undertaken work to implement the elements, whereas the 58% of respondents referred to above undertook the implementation process according to a formal design. Whether it was part of a decision to do so, or having occurred by default, it may, therefore, be concluded that 28% had undertaken the work without a plan and in accordance, either consciously or not, with the emergent process of change (Tables 4.15 and 4.16).

For the 58% of respondents, who did, therefore, declare that their improvements had been undertaken to a plan, the essential research issue was to establish how comprehensive were these plans. The answer will be found in the sections that follow, the information for which has been gathered from the core components of the planning process that formed Questions 5 and 6 of the Questionnaire.

**Persons with Special Responsibilities**

The appointment of persons with special responsibilities will be an important feature of the planning process. In some cases they will be acting as either the change agent or in support of that post holder and/or the change management team. However, in most cases they will play a less strategic but, nevertheless, essential operational role in assisting to keep the development programme on target, and in the case of line managers, perform a significant part in its practical execution. The inclusion of individuals with particular duties such as these will signify that thought has been given to the execution of the plan.
including achieving the involvement and commitment of operational personnel to it, of the practicalities of its operation, and of meeting the stated objectives.

It was found that across the company size ranges and industrial activity groups, a substantial 66% of companies had identified the importance of support personnel by the inclusion of persons with special responsibilities (Question 5(b)(ii)). No statistically significant differences existed within the three sub-groups of either the company size ranges or industrial activity groups (Tables 4.15 and 4.16).

**The Inclusion of Timescales**

Providing a discipline for the achievement of stated objectives within given timescales (HSC, 1994; HSE, 1997a), such timescales provide an essential reference point against which the progress of improvement programmes can be measured. In this respect they are complementary to performance standards and do, in the same way, permit programme ‘drift’ to be detected and remedial action to be taken, before the possibility of potentially damaging deviations occur to the prescribed plan of action.

Fifty five per cent of participating companies considered timescales to be an important element of their plan (Question 5(b)(i)). No statistically significant differences existed across the company size ranges or industrial activity groups (Tables 4.15 and 4.16). With, therefore, only just over half of companies including timescales in their plans, and this being broadly the same irrespective of company size or industrial activity, for the remainder, no time measure was available against which the progress of individual components could be measured. For these companies, programme ‘drift’ was liable to occur and to be a negative factor in the levels of success achieved with programmes.
The Inclusion of Other Components Within the Development Plan

Thirty per cent of respondents claimed that their plan had included a number of other components (Question 5 (d)), and these are listed in Table 4.17. The most significant of these, and identified by between 32% and 15% of the 41 companies who responded, were in descending order of popularity:

- Improvement plans to be comprehensive and to identify all key players, including health and safety committees and safety representatives, to communicate safety to staff.

- Regularly review progress against targets (by either internal or external personnel) and record progress.

- Training, including line management persuasion.

- The need for safety auditing.

- Identifying necessary budget and other resource allocations.

It is of note that these additional components are all highly practical in nature and directly applicable to the planning process. Their inclusion is particularly meaningful, and the second being synonymous with performance standards, assists to significantly strengthen the development process. Statistically, they do not, however, signify that companies are, to any appreciable extent, actively pursuing the inclusion of other components that will enhance the quality and effectiveness of their programmes.
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Performance Standards

As was seen in Chapter Two (p. 2 – 101), the setting of performance standards, together with timescales, jointly provide for each element of change, the essential foundations for their successful accomplishment. This is well recognised in the health and safety field (HSE 1997a) and as we learn from Bird and Germain (1987), "measurement involves comparison with standards. Without adequate standards, there can be no meaningful measurement, evaluation or correction of performance."

Asked, therefore, whether respondents had set performance standards by which it might be possible to measure the progress or success of each element (Question 6(a)), only 32% of participating companies claimed to have done so. At 50%, the largest companies did this to the highest level, followed by those with between 100-499 employees at 27.3%, and to only 14.6% by the group of smallest companies, this difference being highly statistically significant at the 0.1% level. Within the industrial activity groups there were no statistically significant differences (Tables 4.18 and 4.19).

With 58% of companies claiming to have undertaken their improvements to a plan, 55% having included timescales within such plans, but only 32% having set performance standards, it is evident that a significant shortfall exists in current development methodology. It was precisely such inconsistencies that the formulation of the Integrated Model of Change, and its application, was designed to eliminate. Given the accepted importance of plans, timescales and performance standards to the achievement of objectives, it is a reasonable assumption that the poor levels to which they were applied is a significant contributory factor in the difficulties encountered by companies in achieving the successful execution of their development programmes.

In Chapter One, establishing why development programmes often encounter difficulties and sometimes fail, was identified to be the principal reason for undertaking this study. Will the inconsistencies in the component parts of the planning process that have been
identified, be reflected in the levels of success being achieved with the specific change programme on which this research is based? The answer will be provided in Section 5.3.4.

**Difficulties Encountered During the Development Process**

Those respondents who stated that standard setting had been undertaken within their organisations to measure the progress or success of each element (Question 6(b)), were asked to identify any difficulties encountered in meeting them. Information gathered from this question was intended to provide an indication of whether, during the standard setting process, such difficulties could have been identified and, therefore, designed out. Alternatively, having set such standards, problems could have been detected and rectified as soon as they became apparent. The issues respondents identified are shown in Table 4.20, but the six most common, encountered by between 27% and 10% of the 52 that responded were, in descending order of priority:

- Resistance to change.
- Inadequate resources.
- Acceptance of responsibility/ownership.
- Inadequate standard setting.
- Difficulty in achieving consistency across the organisation.
- Maintaining momentum and commitment to initiatives.

As previously described (p. 3-140), responses to this question were numerically poor, and substantiation of the validity of the information was, therefore, sought in a
supplementary questionnaire (Appendix 9). Distributed to a limited number of organisations, information gathered from this identified that the above were, indeed, albeit in a slightly modified order, considered to be a real problem to respondents.

Each of the above are issues which, if greater attention had been given to the standard setting process during the planning stage, could have been anticipated and either designed out, or strategies introduced to detect and manage them as soon as they arose. By, therefore, tracking the timescales and performance standards set for each objective, such problems could, indeed, have been detected and rectified as soon as those arose.

**Where Key Elements Had Not Been Included in Development Programmes, Would They Have Been of Assistance?**

It is difficult to appreciate what the planning process would include if it did not contain timescales, persons with special responsibilities, or other components such as performance standards. This did, therefore, lead inevitably to asking respondents whether, on reflection, doing so would have been of assistance (Question 5(c)). Across the company size ranges and industrial activity groups, 63% of respondents identified that they would. No statistically significant differences existed within either the company size ranges or industrial activity groups (Tables 4.15 and 4.16).

This information does provide a positive indication that with the benefit of hindsight, there is a recognition that the inclusion of more comprehensive elements in the composition of change strategies would have been of practical value. Importantly, it also signifies a preparedness to accept that such improvements were necessary.
**When Were Developments Undertaken?**

To provide confirmation that the changes on which the information gathered for this research were undertaken relatively recently, and were, therefore, still relevant, respondents were asked when they had embarked on implementing their improvements (Question 3(d)).

The concept of organisational safety culture was little appreciated until the 1990’s, when the terminology began to filter into safety literature and teaching, and was subsequently incorporated into operational health and safety development programmes. The results of the data confirm this to be the position, it being seen that safety culture improvements were negligible during the 1960’s and 1970’s, a slight rise discernible during the 1980’s and a significant increase evident during the 1990’s (Figure 4.1).

The information on which this study was based was, therefore, gathered from recent experience and on that basis was well within the contemporary knowledge of respondents and directly related to their experiences.

**Summary of the Planning Phase of Development Programmes**

From the information gathered for the above component parts associated with the Planning Phase of development, can be determined the level of sophistication of the plans that were formulated to achieve health and safety improvement programmes.

Of the 86% of companies claiming to have implemented at least some of the elements of the safety culture, the percentage that did so according to a development plan declined to 58%. Furthermore, while 55% included timescales, only 32% set standards by which the progress or success of their initiatives could be measured. Furthermore, 30% had
included other components within their plans, and 27% recognised that they had encountered difficulties during the development process. Sixty six per cent of respondents identified persons with special responsibilities to assist with achieving objectives. Some significant shortfalls were, therefore, evident in the level of planning being undertaken to achieve objectives.

Reflecting the greater sophistication and development awareness that has already been observed with the group of largest sized companies, with a plan being produced and standards being set, statistically significant differences existed between them and the medium and smallest sized groups. No statistically significant differences existed within the industrial activity groups and, therefore, the type of industrial activity in which organisations were engaged had no direct relevance to the level to which the planning process was being undertaken.

5.3.4 The Assessed Success Achieved in Implementing Improvements

From the information gathered, it is evident that organisations had not routinely adhered to formal, comprehensively structured development planning such as is encapsulated within the Integrated Model of Change. Would the limited application of development methodology and lack of trained and experienced help and literature available, be reflected in the success that respondent organisations achieved with their change programmes?

To establish the impact of frequently inadequately structured development programmes, Question 7 of the Questionnaire asked respondents to identify the levels of success achieved with their improvements. For any company this will always be a subjective assessment, often appraised differently by one member of an organisation from another. Appendices 12 and 13 contain the summarised data relating to these assessments. They show that largely irrespective of company size or industrial activity, the success achieved was predominantly classified by respondents as being in
the category of 'good', followed by 'fair' and lastly by 'excellent'. These assessments do not convey a predominant sense of satisfaction with the levels of success being achieved and confirmation that this is recognised by respondents is contained in Section 5.3.5 below. They also provide a positive indication that increased awareness of development methodology is now required.

Furthermore, analysis of the three groups within the company size ranges revealed broadly similar perceived levels of success attained. The only statistically significant differences that were identified by the Mann-Whitney U test, related to the following elements of the safety culture:

Element iv: *Health and safety is managed and treated as are other corporate objectives and is properly resourced.*

Element vi: *Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication.*

Element x: *Management must regularly review performance.*

Element xi *A positive commitment to safety is visible throughout the management chain.*

In the case of elements iv and vi, the medium sized companies with between 100 and 499 employees had registered a higher level of success than either the smallest or largest companies. In the case of elements x and xi, the medium sized companies registered a higher level of success than the largest. With element xi, both the smallest and medium sized companies registered a higher level of success than the largest.

There were no statistically significant differences, in relation to industrial activity.
5.3.5 Would Respondents Have Undertaken Improvements Differently?

Having, therefore, determined the level to which the planning of developments was being undertaken, and the success being achieved, Question 8(a) asked if, with the benefit of hindsight, respondents would have approached development differently. Thirty per cent stated that they would, indeed, have done so.

Asked what they would have done differently (Question 8 (b)), of the 47 who responded to this question, the following were identified:

(i) 60% stated that they would have laid out a clear development plan at the initial stage. This would have included the identification of objectives and targets to be met and, where appropriate, quality and environmental objectives.

(ii) 22% identified:
the need for there to be an emphasis on the development of ownership and commitment at all levels of the organisation;
and
the production of a programme of training based on identified needs.

(iii) 17% identified that they would have communicated and made relevant to all the initiatives in a meaningful manner.

(iv) 15% stated that responsibilities within the development programmes should have been clearly defined.

(v) 11% said that there was a need to appointment competent H&S personnel, either internally or externally.
The above, and the remaining four elements which were identified by between 6% and 2% of respondents are summarised in table 4.23. Each of (i) - (v) are characteristic of those issues which the initial delineation of development programmes and their subsequent detailed planning, should be undertaken to design out. This is exemplified by 60% (of the 47 who responded to this question) having recognised that a clear development plan should have been initially laid out and would have included the identification of objectives and targets. This is the central component of development planning, and items (ii) - (v) above are further examples of those issues which, if such planning had been undertaken, could have been identified before the introduction of initiatives commenced. Appropriate management controls could then have been implemented before, not after, the need arose.

5.4 Discussion Summary.

What, therefore, does this information reveal in respect of the existing state of health and safety development planning?

Two themes have been observed to run consistently throughout the information gathered from respondent organisations. The first is that although exceptions do occur, statistically significant, and other less marked differences, signify that the larger the size of the company, the more likely it is to have attached importance to the planning process. Company size, as measured by the number of employees, is, therefore, directly related to the extent to which the elements of the safety culture were recognised to be relevant and to the level of sophistication given to their improvement and the stages involved in their planning. The lower levels recorded for the group of smallest companies endorses the need, and the Health and Safety Executive's declared objective, in their Mission Statement for their Plan of Work for 1998/99 (HSC. 1998a), to improve the safety performance of the smallest companies. It also endorses the Health and Safety Executive/Local Authority Enforcement Liaison Committee (HE/EA Strategy) for 1998/99 (HSC. 1998b), to improve the safety performance of such companies.
The second theme is that within the industrial activity groups, no one group is seen to be predominant in having attached importance to the development process. As a result of the nature of the activities undertaken, it is a reasonable presumption that companies engaged in the manufacturing and associated industries will be more advanced in their management of risk than those in the wholesale and retail trades, and in finance and business services. However, this supposition is not validated by the information gathered. This may be attributable to common and effective approaches to the management of safety being employed, irrespective of whether companies are engaged in manufacturing, the wholesale and retail trades, or finance and business services. It might also be the result of the higher risk industries implementing management practices that are no more effective than those of the lower risk industries. Which of the two is predominant was outside the scope of this study to determine. It may be a phenomenon induced by the grouping together of all companies within the manufacturing and associated industries. The effect of this could be to decrease the statistical impact of those companies engaged in, for example, mining, which because of the nature of their activities, have been required to achieve change in accordance with the highest development standards. This is an area worthy of further research. However, if such investigation reveals that practices are indeed no more effective in such higher risk industries, it is a subject which must be addressed by bodies, including the relevant Health and Safety Executive Advisory Committee, or industry specific organisations such as the Engineering Employers Federation.

The phenomenon of the largest group of companies generally rating highest in their management practices, followed by the medium, followed by the smallest, with no such clarity of pattern being generally evident in respect of industrial activity, is a theme which runs throughout the comments and statistics that follow.

The findings demonstrate that the eleven elements of the safety culture that were principally identified by the Confederation of British Industry (1990), remain highly
relevant to companies almost ten years after they were first widely brought to the attention of employers. The work undertaken to implement, develop and/or maintain at least some of these elements across the company size ranges and industrial activity groups, was claimed to have been achieved to levels of 86%, 74% and 79% respectively. Of the 58% of companies that had undertaken implementation in accordance with a development plan, 55% had included timescales and 32% standard setting. These poor levels were unexpected. Planning, timescales and performance standards, are the essential ingredients to be established to measure progress and the achievement of objectives.

A number of significant issues are contained within this information. They are indicative of the failure of respondents to appreciate that there are two very different types of approach to change required. The first, adequately covered in development literature and recognised to be part of essential health and safety development methodology, is for there to exist an appreciation that improvements are a continuing feature of effective safety management and to then determine precisely what needs to change. The second, and as has been observed clearly less understood or practised, is to effectively plan how to introduce such new or revised management systems in a programme of change. A marked improvement is demanded in the guidance material and the skills required for this. The low percentages recorded for the inclusion of performance standards within the planning process, is illustrative of a lack of sophistication in management practice, particularly of there being little formality applied to developments. It is also evidence of a significant shortfall existing in health and safety improvement methodology. What a plan would contain if it did not include performance standards is unclear. However, it is apparent that at least as much as half of industry is not preparing for the process of change, and that the plans of the other half are incomplete. This strongly supports the hypothesis presented in Chapter One, that the reason that many health and safety related improvement initiatives founder is due to a lack of planning. In these cases, improvements would normally have occurred as a result of their evolving or developing without a structure, sometimes by default.
over a number of years, which strongly denotes a naivety in the approach to such
development.

This position is indicative of the very limited extent to which the health and safety
literature, and common practice, draws attention to the importance of the formal
planning of the implementation of change programmes and consequently to a large
measure, to companies being unaware of the need to do so. This is compared with the
large amount that is relevant to this subject and which relates to organisational
development. As previously stated (p. 5 – 193), it is these difficulties that the
Integrated Model of Change was designed to negate. Its purpose is to achieve the
position in which all 86% of companies involved in this study that had implemented
at least some of the elements of the safety culture, would conduct future developments in
accordance with the phases of such a formal plan. In doing so, persons designated
with specific responsibilities, as well as timescales and performance standards, would
all be included to precisely the same levels.

At first sight, something of a contradiction existed in the fact that among respondent
organisations, a substantial 74% considered that reference material was available to
assist them with the improvement process. When asked to quote the literature found to
have been most helpful, specific documents were not identified, but rather the publishers
of information. On investigation, the publishers quoted have not promulgated any
significant material on the subject of planning the implementation of change
programmes, neither are they associated with the organisational development literature
that has. HSG65 (HSE, 1997a), being one of the most widely recognised Health and
Safety Executive publications since the release of the first edition in 1993 and,
therefore, undoubtedly one of the sources that would have been in mind when this
question was answered, does not cover this aspect of development methodology. This
is highly suggestive that within the majority of respondent organisations, there exists
little recognition of the concept or significance of change planning, and of its practical
application. It is a positive indication that in the absence of information specifically
related to health and safety, organisations are not aware of the organisational development literature available, and the associated methodology, that has a vital educational role to play in this subject area.

Reference is made in a limited number of Health and Safety Commission/Executive documents to the need for planning the implementation of improvements and to timescales and performance standards. Furthermore, BS 8800 (BSI, 1996) specifically promotes the subject as a key management activity in the development process. The information gathered during the course of this research is that the need to conduct adequate preparation and management of the execution of improvement programmes must now be developed and disseminated widely and effectively, by such bodies.

If careful planning of improvements is undertaken, then it should mitigate the potential for problems to occur. On that basis, having established that such planning is at a relatively low level, it might reasonably be assumed that organisations would have experienced significant difficulties during the implementation process.

Twenty seven per cent of respondent organisations identified that difficulties were encountered in meeting the standards set to measure the progress or success of each element. The ten issues they identified were matters such as resistance to change, inadequate resources and acceptance of responsibility/ownership. Each could have been identified, and appropriate management strategies introduced to deal with them, either prior to work commencing, or during its execution. This subject was revisited in a supplementary questionnaire (Appendix 9) which was undertaken, not to address deficiencies in the pilot studies, but as a result of the poor response to this question in the full survey (Section 3.8). The results of this supplementary questionnaire showed that although the obstacles to progress were identified in a slightly modified order, they were still seen as being a very real problem.

It was outside the scope of the questionnaire to explore the problem solving strategies employed to overcome these difficulties. Nevertheless, that they exist, as seen in Chapter
CHAPTER FIVE

Two (p. 2 - 94), and that an awareness of them is largely absent in the health and safety literature known to employers is evident. On that basis, it is clear that there is a need to raise an awareness of their presence and that they should be utilised in future development programmes.

It was identified that generally evenly distributed between the company size ranges and industrial activity groups, 62% of the companies participating in the research had sought external help to assist with their improvements. However, there is little evidence to suggest that external agents are any more competent to guide organisations through the planning/improvement process than would be an organisation’s own safety practitioner. Why is this so?

The increased demands and greater professionalism required of the safety practitioner have necessitated their adoption of a wider range of competencies. While this has been most noticeable in the potentially high risk nuclear and offshore industries, it has also grown steadily in that broad range of lower risk undertakings which constitute the majority of the United Kingdom’s industrial activities. Albeit, it is in these that the potential for disasters exists on a less major scale. The necessity to remove the possibility for such adversity to occur, and the penalties which may accompany a failure to meet legislative compliance and expensive civil litigation, mean that there is an increasing pressure for safety to be managed in a competent and professional manner.

One significant piece of information that was not anticipated at the outset of the research but which emerged from the review of the literature, was the need for the planning and implementation process to be steered by a competent change agent. This was further emphasised by the significant levels to which external assistance was sought to assist with the improvement process described in Chapter Four.

A broad approach to planning and implementing is seen in HSG65 (HSE, 1997a), and BS 8800 (BSI, 1996) in which, in the latter, it is suggested that, “Organizations may find
it useful to draw on the experience of a number of individuals to plan and implement improvements in their OH&S system”. While BS 8800 does begin to address the planning issue, the findings of this research take the requirement of this document further and signify that a more stringent requirement exists. This is to include at least one member of the project team, ideally for the reasons previously discussed, the safety practitioner (Section 2.4.5), being familiar with the planning and implementation process. Indeed, this is at the very core of effective safety management. Whether the safety practitioner is from within the organisation, or has been engaged as an external consultant, they will be entrusted with the task of achieving the completion of projects in the most efficient and effective manner possible. However, without their adequately planning and implementing the introduction of safety improvements, initiatives are unlikely to reach their full potential and thereby fail.

The safety practitioner’s capacity to ensure the effective introduction of improvements is achievable by the application of more sophisticated and effective improvement techniques. It requires the integration of organisational development methodology and specifically that relating to the planning and implementation process, to form an identifiable feature of national training programmes and also including the subject in the information sources available. On that basis, the conclusions reached concerning personal development needs apply equally to internal safety practitioners as they do to external personnel such as consultants. These requirements must, therefore, now be conveyed to those institutions providing health and safety training, and to the Health and Safety Executive in respect of their role in raising awareness of the need and capabilities, demanded in this subject area. Without the existence of a greater recognition of their significance, ineffectively prosecuted initiatives will continue to flounder and an important component in accident causation prevention will remain unused.

The above information is highly indicative that had all 86% of companies claiming to have implemented at least some of the elements of the safety culture done so to a comprehensively planned and executed programme, then significant improvement rates
could have been achieved. Specifically, with the inclusion of timescales, performance standards, change agents competent in change management practices, supported by persons with special responsibilities, it is hypothesised that the success achieved and recorded as predominantly “good”, followed by “fair” and lastly by “excellent”, could have realistically been increased to predominantly “excellent”. However, as well as providing the methodology by which such improvements may be secured, it is also the way in which the failure of improvement initiatives which were observed by the author to have taken place (p. 1 – 3), may be avoided.

The inability to routinely adopt a systematic approach to improvement programmes is a positive indication that there is a need for organisations, largely through their safety practitioners acting as change agents, to have available to them, and to work to, a model of change. In Chapter Two, such a model was developed and presented, as the Integrated Model of Change. The information gathered during this research emphasises the need, and benefits to be gained, from the discipline provided by undertaking health and safety change in accordance with a clearly defined series of interrelated actions, contained within such a model.
6.0 Research Conclusions

6.1 Conclusions

A number of conclusions may be drawn from the information gathered during the course of this research.

1 From the review of the literature, it is evident that there is a distinct lack of health and safety related material available to provide guidance on the planning of change management programmes. This is compounded by the fact that organisations have been seen to be unaware of that which exists, and could be of assistance, within the organisational development field.

2 The nature of the duties of the safety adviser engaged either from within or outside of organisations, is seen to require them to play a key role in the change process, frequently taking on the lead role of change agent. However, undertaking this role is one for which they are not prepared. There is, therefore, a need to significantly raise the profile of development planning in the formal health and safety training programmes currently available.

Items 3-6 below provide answers to the three research questions posed in Chapter Two. (p. 2 - 110). These sought to determine how companies plan for improvements, whether such planning is related to company size and industrial activity, and to what extent they set standards against which the success of change programmes can be measured.

3 The extent to which companies have been planning their health and safety improvements was revealed in the lack of awareness of need, and disappointing levels of planning and standard setting identified to be taking place. It was also evident in the generally mediocre levels of success being achieved with change programmes. This can be linked with the lack of health and safety guidance
material and training available to the safety practitioner and those having a responsibility for safety.

4 Company size was directly related to the level of sophistication attached to the planning process. The extent to which the planning of improvements and the inclusion of timescales, persons with special responsibilities and standard setting was being undertaken was reflected in the largest companies having incorporated these to the greatest extent, and the smallest to the least. No such pattern was evident in relation to company industrial activity.

5 Although just over fifty per cent of companies had undertaken their improvements according to a plan, and included timescales, approximately only half of these were seen to have set performance standards by which the progress or success of improvements could be measured.

6 The lack of recognition of the importance attached to the planning process can be observed in those issues identified by respondents as being barriers to success, and which were possible to have been identified and addressed at the planning stage. It was also reflected in the fact that the regular auditing of performance against standards, and realistic and achievable targets being set, were ranked lowest in the order of popularity or relevance, of the eleven elements of the safety culture.

7 Information gathered during the review of the literature demonstrates that planning change is more involved than simply following the HSG65 (HSE, 1997a) or BS 8800 (BSI, 1996) approaches. The author’s Integrated Model of Change provides a detailed framework within which the change management process may be undertaken and by which those deficiencies identified in items 3 – 6 may be redressed.
6.2 Scope for Further Research

There are three principal areas of further research emanating from the findings of this study.

Firstly, from the information that has been gathered, it has been observed that significant deficiencies exist in the awareness of need and, therefore, practice, of achieving objectives in accordance with a planned programme of change. This is undoubtedly due to a lack of awareness of the proven organisational development methodology that is already available, but which has not filtered through to assist those undertaking health and safety improvements. This is reflected in the need for the availability of comprehensive development methodology, by which this can be addressed. It is, therefore, considered by the author to be the first of a two-stage process of improvement research, the second stage of which is for this to be tested, specifically in a health and safety context, against two survey groups. One group, basing their improvement programme on the components of the author’s Integrated Model of Change, the other on the emergent approach to change. Undertaken within suitably controlled conditions, it is hypothesised that the resulting data will provide further empirical evidence in support of the planned approach.

Secondly, it has been seen that across the industrial activity groups, little difference is discernible in the level to which the tools that are available to improve the development process, such as planning, standard setting and the inclusion of timescales, are being utilised. This is interpretable as being either that the three groups are equally advanced in their development techniques, or that the generally higher risk activities in which some organisations are engaged is not influencing their development practices, essentially as a result of the poor appreciation of the subject throughout industry. Whichever of the two is applicable, it is not possible to determine which is so from information obtained during this research. On that basis, further investigation will need to be conducted to establish which is the case, before any steps can be taken to seek improvements if these are found to be necessary.
Thirdly, the demands for brevity imposed on the full questionnaire meant that it was outside the scope of this study to investigate the problem solving techniques used to resolve potential or actual issues arising during the improvement process. However, the review of the literature established that this is an important tool available to employers in the organisational development field and further research is necessary in its application to health and safety related organisational improvements. To what extent employers are aware of it, and how frequently it is used to identify and rectify problems before difficulties appear in problem situations, possibly having the ability to impede development programmes, needs to be established. Should investigations reveal that this is a little understood and utilised tool, then it is a subject deserving recognition which should be brought to the attention of those engaged in the planning of health and safety developments.

6.3 Concluding Comments

Information gathered during the research provides a positive indication of the need to raise the employer’s awareness of the importance of effectively planned and executed improvements. The pitfalls that may currently be encountered can be linked with the deficiencies in health and safety related development training and material available. This corroborates the need for awareness to be raised of the potential problems of poorly researched and developed plans. Also, for guidance to be made accessible in a clear and concise format covering the improvements that have been identified to be necessary to the manner in which the planning and execution of developments is being undertaken. In this way, employers will be aware of the potential pitfalls of inadequately developed plans, and having the means at their disposal to conduct comprehensive development planning, will be more able to effectively undertake the improvement process.

It has been seen that the ingredients for effectively securing change, such as planning, timescales and particularly performance standards, are frequently missing from the improvement/change process. However, by their inclusion in the application of
intelligible and proven organisational development methodology. the link that is often missing can be provided between the commitment to improve an organisation’s safety performance, and how that is best achieved.

The author’s Integrated Model of Change, developed to be introduced by a competent change agent, engaged from either within or outside of the organisation, adhering to the stages of the model, should facilitate improvements being undertaken with greater success. This is achievable by either eliminating, or enabling the management of those issues that would otherwise have the ability to impede successful programmes. It is a model that is designed to be relevant to all organisations, irrespective of their size or industrial activity. As such, it is also another tool available to the enforcing authorities in their endeavours to improve the safety performance of smaller companies, although the need has been shown to be common, albeit to a lesser extent, to the medium and then large organisations.

Health and safety change is increasingly in the hands of the safety practitioner to deliver. However, it has been seen that safety related organisational development is a task demanding specialised skills and abilities and these do not currently form an identifiable feature of their training. In the interests of the effective management of safety this is a subject in need of rectification.


214


Edwards v National Coal Board [1949] 1 KB 704 [1949] 1 All ER 743, 93 Sol Jo 337. 65 TLR 430, CA


R v Oll Ltd [1995] (unreported).


Universities Safety Association (1994) *Profile* for Windows Audit Package; University of Strathclyde.


FORM FOR THE RECORDING OF COMPANY INFORMATION OF THOSE SELECTED TO PARTICIPATE IN THE RESEARCH
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LETTER ASKING RESPONDENTS TO COMPLETE RESEARCH QUESTIONNAIRE
Dear

Pilot Health and Safety Questionnaire

Following our recent telephone conversation, I am grateful for your agreeing to participate in the completion of the attached questionnaire.

The questionnaire forms an integral feature of the research I am conducting into the manner in which organisations identify improvements required to their management of health and safety and how they plan and implement such improvements. I am also reviewing what are considered to be the main elements essential to the improvement process.

Please be assured that the information you provide is entirely confidential; the data which is collected is being used anonymously in statistical analysis and destroyed after decoding.

I have enclosed a stamped addressed envelope for the return of the completed questionnaire and would like to thank you again for your participation.

Please do not hesitate to contact me if you would like to discuss any aspect of this research.

Yours sincerely

Richard H. Fisk
Health and Safety Adviser
phsq
LETTER REMINDING POTENTIAL RESPONDENTS TO
RETURN COMPLETED QUESTIONNAIRE
Dear

Health and Safety Questionnaire

You may recall our telephone conversation of 1997, during which you agreed to participate in the completion of a health and safety questionnaire which forms an integral feature of the PhD research I am conducting into the manner in which organisations identify any improvements required to their management of health and safety.

Having not received your completed questionnaire, it may have gone astray in the post and I have, therefore, enclosed another copy, together with a stamped addressed envelope, and hope that you are still prepared to assist me with its completion.

Please be assured that the information you provide is entirely confidential, the data collected is being used anonymously in statistical analysis and destroyed after coding.

With many thanks.

Yours sincerely

Richard H. Fisk
Health and Safety Adviser
Enc
letb
FIRST PILOT RESEARCH QUESTIONNAIRE
HEALTH AND SAFETY QUESTIONNAIRE

Has your organisation embarked on a strategy directed towards:

1(a) Implementing safety management systems?

(please circle as appropriate)

1(b) Developing existing safety management systems?

Yes/No

1(c) Maintaining safety management systems?

Yes/No

If the answer is 'No' to each of these questions, you need to proceed no further.
If your answer is 'Yes' to one or more, please continue with Question 2(a) onwards.

2(a) Was reference material available to assist you in this Health and Safety improvement process?

Yes/No

(please circle)

2(b) If 'Yes', please list up to three such documents found to be most helpful:

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3(a) Was it necessary to conduct a review of safety management systems before the improvement process was begun?

Yes/No

(please circle)

3(b) Did this review identify that improvements were required?

Yes/No

3(c) Please identify up to three reasons which prompted the programme of improvement to be undertaken:

i)  

ii)  

iii)

3(d) Did you seek any external help?

Yes/No

(please circle)

3(e) When did you embark on the improvement process? Date:

(month/year) ........................................
4(a) Please indicate how the improvements required within your organisation were identified:

4(b) Please indicate up to 10 areas identified as requiring improvement (in descending order of priority), following the review of safety management systems:

i) 

ii) 

iii) 

iv) 

v) 

vi) 

vii) 

viii) 

ix) 

x) 

4(c) For each of the above, were any standards set by which progress or the success of each could be measured?  Yes/No

4(d) If the answer to 4(c) is ‘Yes’, please identify what these standards were in relation to each of i) to x) above:

i) 

ii) 

iii) 

iv) 

v) 

vi) 

vii) 

viii) 

ix) 

x)
4(e) For each of i) to x) above, please indicate any significant difficulties which were encountered/are being encountered:

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5 How would you assess the success achieved in meeting the standards set (if any), identified in Question 4(d)? (Please tick where appropriate):

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6(a) With the benefit of hindsight, would you have approached organisational development for Health and Safety in any different manner? [Yes/No (please circle)]

6(b) If 'yes', please state what you would have done differently. (If your comments relate to any of items i) to x) above, please identify these against the item number, if not, your general comments would be appreciated.)

Richard H. Fisk
Health & Safety Adviser
Roehampton Institute London
Tel: 0181 392 3674

April 1996
ORGANISATIONAL PROFILE QUESTIONNAIRE
# PILOT HEALTH & SAFETY QUESTIONNAIRE

## ORGANISATIONAL PROFILE QUESTIONNAIRE

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| Post held: | Is this the most relevant person within the organisation to complete the questionnaire? Yes/No |
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|            | If 'No' please identify by title the most relevant person:                                   |

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## ABOUT THE QUESTIONNAIRE

**Was it generally easy to complete?** Yes/No (please circle as appropriate)

If 'No' please identify any question(s) you found to be ambiguous or difficult to understand:

**Do you feel that it was a reasonable length?** Yes/No (please circle)

If 'No', was it: Too long/Too short?

**How long did it take you to complete?**

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</table>

**Do you feel that there are any important, relevant questions which have been omitted?** Yes/No

If 'yes', please identify these below:

**Would you mind if I telephoned you in the event of any queries arising relating to your answers?** Yes/No (please circle)

Your Tel No: 

Your participation in this research is greatly appreciated. If you would like to receive a copy of my findings, which are expected to be available during the latter part of 1997, please tick the box below. In the meantime, please be assured that the information you have provided will be treated in strict confidence.

---

Richard H. Fisk  
Health & Safety Adviser  
Roehampton Institute London  
Tel: 0181 392 3674  
April 1996
SECOND PILOT RESEARCH QUESTIONNAIRE
HEALTH AND SAFETY QUESTIONNAIRE

1(a) Listed below are eleven elements which are among those identified as contributing to the organisational development of health and safety.

Please tick those considered to be relevant to your organisation.

(i) Leadership and commitment from the Chief Executive
(ii) Acceptance that it is a long term strategy which requires sustained effort and interest
(iii) A policy statement which is realistic, yet identifies high expectations and is supported by codes of practice and safety standards
(iv) Health and safety is managed and treated as are other corporate objectives and is properly resourced
(v) It is a line management responsibility
(vi) Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication.
(vii) Realistic and achievable targets should be set and performance measured against them
(viii) Incidents should be thoroughly investigated
(ix) Regular auditing of performance against standards must take place and deficiencies remedied promptly
(x) Management must regularly review performance
(xi) A positive commitment to safety is visible throughout the management chain

1(b) If additional elements, not included in 1(a) above, are considered important to your organisation, please list up to five of these below.

(i)
(ii)
(iii)
(iv)
(v)

2 Within your organisation, has any work been undertaken to:

2(a) Implement any of these elements?  YES/NO
2(b) Develop these elements where they already exist?  YES/NO
2(c) Maintain any of these elements?  YES/NO

If the answer is ‘No’ to each of these questions, please proceed to the final section, page 4.
If your answer is ‘Yes’ to one or more, please continue with Question 3(a) onwards.
3(a) Was any reference material available to assist you in this Health and Safety improvement process?  
[YES/NO] (please circle)

3(b) If 'Yes', please list up to three such documents found to be most helpful:

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<thead>
<tr>
<th>Author</th>
<th>Title</th>
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3(c) Did you seek any external help to assist with improvements?  
[YES/NO] (please circle)

3(d) When did you embark on implementing improvements?  
Date ____________________ (month/year)

4 Was the need for improvement identified by:

4(a) Reviewing existing practices against the individual elements identified in 1(a) and, if appropriate, 1(b) above?  
[YES/NO]

4(b) Producing your own list of essential elements?  
[YES/NO] (please circle)

4(c) Other methods?  
[YES/NO]

4(d) If you have answered 'Yes' to question 4(c), please identify below what other method(s) were used:

5 Did the implementation of improvements require:

5(a) For each element, the production of a plan identifying how the implementation process would take place?  
[YES/NO]

5(c) If 'Yes', did the plan include:

(i) timescales to be followed?  
[YES/NO] (please circle)

(ii) persons having special responsibilities?  
[YES/NO] (please circle)

(iii) other components?  
[YES/NO]

5(b) If 'No', would this have been of any assistance?  
[YES/NO]

5(d) If you have answered 'Yes' to question 5(b)(iii), please identify below what other components were included:
6(a) Were standards set against which it might be possible to measure the progress or success of each element? [YES/NO] (please circle)

6(b) If you have answered 'Yes' to question 6(a), please identify any significant difficulties encountered (if any) in meeting these standards:

7 How would you assess the success achieved in implementing the improvements you have identified in Questions 1(a) and 1(b)? (Please tick where appropriate):

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</table>
8(a) With the benefit of hindsight, would you have approached organisational development for Health and Safety in a different manner? \(\begin{array}{c}
\text{YES/NO} \\
\text{(please circle)}
\end{array}\)

8(b) If 'Yes', please state what you would have done differently. (If your comments relate to any of items 1(a)(i) to 1(b)(vi) above, please identify these against the item number, if not, your general comments would be appreciated).

Richard H. Fisk
Health & Safety Adviser
Roehampton Institute London
Tel. 0181 392 3674

October 1996
Appendix 7

FINAL RESEARCH QUESTIONNAIRE
HEALTH AND SAFETY QUESTIONNAIRE

1(a) Listed below are eleven elements which are among those identified as contributing to the organisational development of health and safety.

Please tick those considered to be relevant to your organisation.

(i) Leadership and commitment from the Chief Executive
(ii) Acceptance that it is a long term strategy which requires sustained effort and interest
(iii) A policy statement which is realistic, yet identifies high expectations and is supported by codes of practice and safety standards
(iv) Health and safety is managed and treated as are other corporate objectives and is properly resourced
(v) It is a line management responsibility
(vi) Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication.
(vii) Realistic and achievable targets should be set and performance measured against them
(viii) Incidents should be thoroughly investigated
(ix) Regular auditing of performance against standards must take place and deficiencies remedied promptly
(x) Management must regularly review performance
(xi) A positive commitment to safety is visible throughout the management chain

1(b) If additional elements, not included in 1(a) above, are considered important to your organisation, please list up to five of these below.

(i) 
(ii) 
(iii) 
(iv) 
(v) 

2 Within your organisation, has any work been undertaken to:

2(a) Implement any of these elements? YES/NO
2(b) Develop these elements where they already exist? YES/NO
2(c) Maintain any of these elements? YES/NO

If the answer is 'No' to each of these questions, you need to proceed no further. If your answer is 'Yes' to one or more, please continue with Question 3(a) onwards.
3(a) Was any reference material available to assist you in this Health and Safety improvement process? YES/NO (please circle)

3(b) If 'Yes', please list up to three such documents found to be most helpful:

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</table>

3(c) Did you seek any external help to assist with improvements? YES/NO (please circle)

3(d) When did you embark on implementing improvements? Date ____________ (month/year)

---

4 Was the need for improvement identified by:

4(a) Reviewing existing practices against the individual elements identified in 1(a) and, if appropriate, 1(b) above? YES/NO (please circle)

4(b) Producing your own list of essential elements? YES/NO

4(c) Other methods? YES/NO

4(d) If you have answered 'Yes' to question 4(c), please identify below what other method(s) were used:

---

5 Did the implementation of improvements require:

5(a) For each element, the production of a plan identifying how the implementation process would take place? YES/NO

5(b) If 'Yes', did the plan include:

   (i) timescales to be followed? YES/NO (please circle)
   (ii) persons having special responsibilities? YES/NO
   (iii) other components? YES/NO

5(c) If 'No', would this have been of any assistance? YES/NO

5(d) If you have answered 'Yes' to question 5(b)(iii), please identify below what other components were included.
6(a) Were standards set against which it might be possible to measure the progress or success of each element? [YES/NO (please circle)]

6(b) If you have answered 'Yes' to question 6(a), please identify any significant difficulties encountered (if any) in meeting these standards:

7 How would you assess the success achieved in implementing the improvements you have identified in Questions 6(a) and 6(b)? (Please tick where appropriate):

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8(a) With the benefit of hindsight, would you have approached organisational development for Health and Safety in a different manner? 

YES/NO (please circle)

8(b) If 'Yes', please state what you would have done differently. (If your comments relate to any of items 1(a)(i) to 1(b)(vi) above, please identify these against the item number, if not, your general comments would be appreciated).

Finally, it would be very helpful if you could provide the following organisational details:

Name of company: ____________________________________________
Nature of business: __________________________________________
Number of employees: _________________________________________
Name of person completing questionnaire: __________________________
Post held: ___________________________________________________

Is this the most relevant person within the organisation to complete the questionnaire? Yes/No

If 'No' please identify by title the most relevant person: ________________________________
Date of questionnaire completion: ___________________________________________________

Would you mind if I telephoned you in the event of any queries arising relating to your answers? Yes/No - Your telephone number: ________________________________

Your participation in this research is greatly appreciated. If you would like to receive a copy of my findings, which are expected to be available during the latter part of 1997, please tick the box below. In the meantime, please be assured that the information you have provided will be treated in strict confidence.

Richard H. Fisk
Health & Safety Adviser
Roehampton Institute London
Tel: 0181 392 3674

January 1997
LETTER DISTRIBUTED WITH FINAL RESEARCH QUESTIONNAIRE
Dear

**Health and Safety Questionnaire**

Following our recent telephone conversation, I am very grateful for your agreeing to participate in the completion of the attached questionnaire.

The questionnaire forms an integral part of the PhD research I am conducting into the manner in which organisations identify improvements required to their management of health and safety and how they plan the introduction and implementation of such improvements. I am also reviewing what are considered to be the main elements essential to the improvement process.

Please be assured that the information you provide is entirely confidential; the data which is collected is being used anonymously in statistical analysis and destroyed after decoding.

I have enclosed a stamped addressed envelope for the return of the completed questionnaire and would like to thank you again for your participation.

Please do not hesitate to contact me if you would like to discuss any aspect of this research.

Yours sincerely

Richard H. Fisk  
Health and Safety Adviser  
Enc
SUPPLEMENTARY QUESTIONNAIRE
HEALTH AND SAFETY RESEARCH

Listed below are ten elements which often present difficulties to organisations meeting their health and safety objectives. Please place a tick against those which, in your experience, have presented obstacles to progress.

1. The allocation of inadequate resources - time/funding/supporting documentation etc.
2. The difficulty of managing health and safety, as well as other work priorities.
3. Inadequate standard/objective setting.
4. Resistance to change, either from individuals or groups.
5. The difficulty of achieving consistency of progress throughout the organisation.
6. Failure of individuals to accept responsibility/ownership, for health and safety.
7. Health and safety not considered as relevant/important to managerial/operational personnel.
8. Maintaining momentum of, and commitment to, initiatives.
9. Difficulty with keeping abreast/being aware, of new legislation.
10. The competence of individuals charged with specific responsibilities, proved inadequate.

Please add here any comments you feel may be helpful.

Thank you for your assistance. A copy of the findings of this research will be forwarded to you towards the end of 1997.

Richard H Fisk  
Health and Safety Adviser  
Roehampton Institute London  
Tel 0181 392 3674
LETTER DISTRIBUTED WITH SUPPLEMENTARY QUESTIONNAIRE
Dear Health and Safety Research

You may remember that you very kindly completed a questionnaire for me, identifying a number of elements included in the development of health and safety within your Company, and whether their introduction was planned and standards set against which progress could be measured.

The answers you gave proved particularly helpful for the PhD research I am conducting and on that basis, I wonder if you would be prepared to finally spend just a few moments indicating on the attached form, those of items 1-10 which have, in your experience, presented difficulties in meeting health and safety objectives.

As before, the information provided is entirely confidential, being used anonymously in statistical analysis and destroyed after decoding.

A stamped addressed envelope is enclosed for the return of the completed form and I would like to thank you for your continued assistance.

Yours sincerely

Richard H. Fisk
Health and Safety Adviser
Enc/q3
RESULTS OF QUESTIONNAIRE FINDINGS SENT TO ALL RESEARCH PARTICIPANTS
Dear

Health and Safety Questionnaire - Response Analysis

You will remember that earlier this year you kindly completed a questionnaire for me. The questionnaire was sent to a total of 189 companies to identify which of eleven elements contributing to the organisational development of safety were considered relevant to their organisation. Where these elements had been implemented, respondents were asked how the need for improvement had been identified, and had implementation taken place according to a plan, with the setting of standards by which it might be possible to measure the progress or success of each element.

As promised, I detail below an analysis of responses. Unless otherwise stated, percentages have been calculated on all 189 participating companies.

I. Against each of the following eleven elements, is identified the percentage of respondents considering each to be of relevance to their organisation.

(1) Leadership and commitment from the Chief Executive = 87%

(ii) Acceptance that it is long term strategy which requires sustained effort and interest = 74%

(iii) A policy statement that is realistic, yet identifies high expectations and is supported by codes of practice and safety standards = 83%

(iv) Health and safety is managed and treated as are other corporate objectives and is properly resourced = 76%

(v) It is a line management responsibility = 77%

(vi) Ownership of health and safety must permeate all levels of the workforce, requiring employee involvement, training and communication = 94%

(vii) Realistic and achievable targets should be set and performance measured against them = 59%

(viii) Incidents should be thoroughly investigated = 92%

(ix) Regular auditing of performance against standards must take place and deficiencies remedied promptly = 67%
Management must regularly review performance = 77%

A positive commitment to safety is visible throughout the management chain = 80%

2. In connection with implementing, developing, or maintaining the above elements:

84% of respondents identified that work had been undertaken to implement them,
73% had also developed them where they already existed,
78% were maintaining them,

3. The need for improvement had been identified by:

62% reviewing existing practices against the individual eleven elements identified above, and/or
52% by producing their own list of essential elements,

4. The implementation of improvements had been achieved by:

51% producing a plan, for each element, identifying how the implementation process would take place

By further analysing this 51%:

80% had identified timescales to be followed,
93% had identified persons with special responsibilities,

5. Standard setting:

28% of respondents had set standards by which they could measure the progress or success of each element, and identified the following 10 points as presenting significant difficulties in meeting these standards:

1. inadequate resources - time/money/personnel,
2. difficulties with managing health and safety and other priorities,
3. inadequate standard setting,
4. resistance to change,
5. difficulty in achieving consistency throughout the organisation,
6. failure of personnel to accept ownership/responsibility for initiatives,
7. subject not seen as important/relevant,
8. maintaining momentum and commitment of initiatives,
9. difficulties created by accommodating new legislation/being aware of new guidance,
10. competence of individuals charged with health and safety responsibilities proved inadequate

A further questionnaire was then sent to 28 randomly selected participants of the original survey asking them to identify which of the above 10 points had, in their experience, presented obstacles to progress
In descending order of priority, respondents identified the following:

- the allocation of inadequate resources: time/funding/personnel = 78%;
- difficulty in achieving consistency throughout the organisation = 70 %;
- failure of personnel to accept responsibility/ownership for initiatives = 70%;
- maintaining momentum of, and commitment to, initiatives = 63%;
- resistance to change = 60%;
- the difficulty of managing health and safety, as well as other work priorities = 52%;
- subject not seen as relevant/important = 44%
- competence of individuals charged with health and safety responsibilities proved inadequate = 41%,
- inadequate standard setting = 30%
- difficulties created by accommodating new legislation/being aware of new guidance = 22%

I am very grateful for your assistance with this research. If you would like to discuss any aspect of it, please do not hesitate to contact me.

Yours sincerely

Richard Fisk
Health and Safety Adviser
rhosa
13/10
ANALYSIS OF THE RESPONSES TO QUESTIONS 7, 1(a) (i)-(xi)
BY COMPANY SIZE RANGES
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Question 7, 1 (a) (x) – See Figure 4.4

Question 7, 1 (a) (xi) – See Figure 4.5
ANALYSIS OF THE RESPONSES TO QUESTIONS 7, 1(a) (i)-(xi)
BY COMPANY INDUSTRIAL ACTIVITY GROUPS
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