

Development of the people first toolkit for construction small and medium sized enterprises

Prepared by the **Health and Safety Laboratory**
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This research builds on initial work (now published in HSE's RR series as RR660) conducted within the construction sector to investigate behaviour change and worker engagement (BCWE) practices employed by Principal Contractors and Consultants belonging to a BCWE Forum set up by the Health and Safety Executive (HSE) and the construction industry. This report summarises Phase II of this research, in which the findings from the initial phase were used to inform the development of a toolkit specifically aimed to equip small and medium sized enterprises (SMEs with between 11-250 directly employed or subcontracted staff) in the construction industry with the skills to implement BCWE practices themselves. The performance toolkit developed, which includes a Health and Safety Culture Maturity Measure (HSCMM), has been translated into a final product during Phase III of this research - The Leadership and Worker Engagement (LWE) toolkit for small and medium enterprises in construction - and this has already been published as RR880.

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EXECUTIVE SUMMARY

AIMS AND OBJECTIVES

This report builds on a Phase I study conducted within the construction sector to investigate behaviour change and worker engagement (BCWE) practices employed by Principal Contractors and Consultants belonging to a BCWE Forum set up by the Health and Safety Executive (HSE) and the construction industry. This report summarises the second phase (Phase II) of this research in which the findings from Phase I were used to inform the development of a toolkit specifically aimed to equip small and medium sized enterprises (SMEs with between 11-250 directly employed or subcontracted staff) in the construction industry with the skills to implement BCWE practices themselves. The performance toolkit developed, which includes a Health and Safety Culture Maturity Measure (HSCMM), will be translated into a product during a subsequent Phase III of the research.

CONTENT RATIONALE

‘People First Toolkit’ was adopted as the working title for the toolkit, although this is likely to evolve as Phase III unfolds. The content of the toolkit was designed to ensure that all the prerequisites necessary for permitting sustainable behaviour change identified from Phase I were covered. This included: motivating management, providing assessment measures, integrating BCWE practices with the health and safety management system, advice on leadership skills, strategies for motivating the workforce, advice on how to instigate and sustain actual change over time. For each component a range of strategies, tools, techniques, information sheets and/or video footage recommendations were produced, the intention being that SMEs select those that best suit their business and workforce needs.

METHODOLOGY

Phase II involved the following processes:

1. Conducting literature reviews to identify (1) salient small site characteristics that needed to be accommodated by the toolkit and (2) the business evidence for BCWE initiatives.
2. Carrying out structured interviews with seven construction SMEs (and email feedback with an eighth SME) to inform the development of the toolkit.
3. Specification of the toolkit’s framework in consultation with the project steering group.
4. Actual development of the toolkit content (information sheets, tools, techniques, etc.) and the HSCMM.
5. Liaison with the BCWE Forum and project steering group to refine elements of the toolkit and assimilate HSE’s work on the leading causes of fatalities within construction.

6. Feasibility testing the toolkit with six SMEs and refinement of the toolkit, where possible, following testing.

OVERVIEW OF THIS REPORT

This report contains all relevant documentation pertaining to the development of the People First Toolkit; it does not contain the actual toolkit itself. The latter will be published following an evaluation, and subsequent modifications, of the toolkit on a sufficient sample of SMEs (approximately 20-30) that will occur in a subsequent Phase III of this research. The intention of this report is to provide readers with an overview of the development stages of the toolkit and key decisions made throughout the process.

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1 RESEARCH OVERVIEW

1.1 AIMS

This report builds on a Phase I study which investigated behaviour change and worker engagement (BCWE) practices in the construction sector¹. Findings from Phase I were based on a sample comprising Principal Contractors and Consultants belonging to a BCWE Forum set up between the Health and Safety Executive (HSE) and construction sector. This report profiles the second phase (Phase II) of this research. This entailed applying the findings from Phase I to developing the *content* of a toolkit capable of equipping small and medium sized enterprises (SMEs) in the construction industry with the skills to implement BCWE practices themselves. The toolkit is aimed at providing construction SMEs the necessary ‘intrinsic’ motivation² for using BCWE to boost their health and safety and business performance. The content will be translated into a product during a subsequent Phase III of the research. Phase II therefore entailed the following:

- Developing the content of a **performance toolkit** for SMEs, currently referred to as the People First Toolkit.
- Developing a short ‘Rule of Thumb’ **Health and Safety Culture Maturity Measure (HSCMM)** for use by SMEs to support needs assessment.

The toolkit needed to strike a balance between covering the essential elements necessary for procuring enduring behavioural change and ease of use. It also needed to be expressed in user-centred language to encourage uptake. To optimize relevance to its target audience, the toolkit has been aimed at enterprises comprising 11-250 (directly employed or sub-contracted) staff working on small construction sites. It has also been aimed at dutyholders or health and safety managers so that they can follow the toolkit and apply the approach with their workforce. Micro-businesses and single operators were not included due to these potentially not having the necessary resources to devote to implementing a good BCWE practice approach. As a way of mitigating disproportionate emphasis on safety as opposed to occupational health, the toolkit would also need to ensure occupational health issues were adequately addressed.

1.2 CONTENT RATIONALE

The project steering group judged the term ‘behaviour change and worker engagement’ as potentially sounding too coercive for the target audience. ‘People First Toolkit’ was therefore adopted as the working title, although this is likely to evolve as Phase III unfolds.

The content of the toolkit was designed to ensure that all the prerequisites necessary for permitting sustainable behaviour change identified from Phase I were covered. This meant that the content needed to:

- Motivate the dutyholder through providing a robust business, moral and ethical case as a way of securing their buy-in (motivate management).

¹ See Lunt, J., Bates, S., Bennett, V., & Hopkinson, J. (2008). *Behaviour Change and Worker Engagement Practices within the Construction Sector*. HSE Research Report RR660.

² See for example, Malone, T. W. (1981). Towards a Theory of Intrinsically Motivating Instruction. *Cognitive Science*, 4, 333–369.

- Provide guidance on how to evaluate a BCWE approach, or use BCWE measures, to diagnose health and safety problems (assessment measures).
- Ensure BCWE practices are properly integrated into the safety management system in order to provide a facilitating physical environment. This was done by mapping advice onto the POPMAR model (policy, organisation, planning, monitoring, auditing and review) as specified by HSG65³ (integration with the health and safety management system).
- Advise on leadership skills conducive to a facilitating social environment (leadership skills).
- Equip the dutyholder/manager with the techniques/strategies necessary for motivating their workforce (motivate workforce).
- Advise on how to instigate actual change in the workforce through ensuring that they have the necessary BCWE skills, planning techniques and competencies (instigation).
- Enable dutyholders'/managers' to sustain change over time (maintenance).

These 'toolkit components' are summarised in Figure 1.

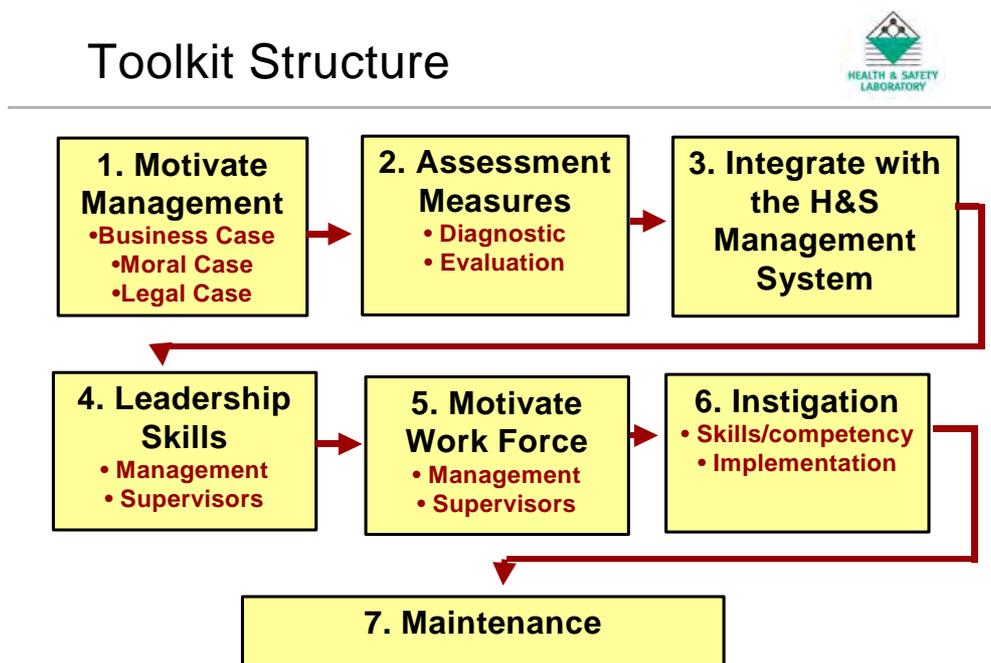


Figure 1: Framework for the Toolkit Content

The framework shown in Figure 1 was rephrased into user-friendly (i.e. construction SME) terms (see Figure 2). For each stage a range of strategies, tools, techniques, information sheets and/or video footage recommendations were produced. It is not the intention that the end-user utilizes all of these elements, rather, they should be able to select those that suit their business

³ See HSE. (2003). *Successful Health and Safety Management (HSG65)*. HSE Books: Sudbury.

and workforce needs. What is more important is that they work through the above stages in a sequential order. Skipping stages could risk their prematurely introducing ideas that then fail as a consequence. It may be that construction SMEs are at different levels. Some may have already implemented BCWE strategies and will therefore be able to move through certain stages more quickly than others. Nonetheless, it will be necessary for all SMEs to review their current position (in Stage 2) regardless of whether they have implemented some components of BCWE in their workforce, as it may be that these are not proving to be effective.

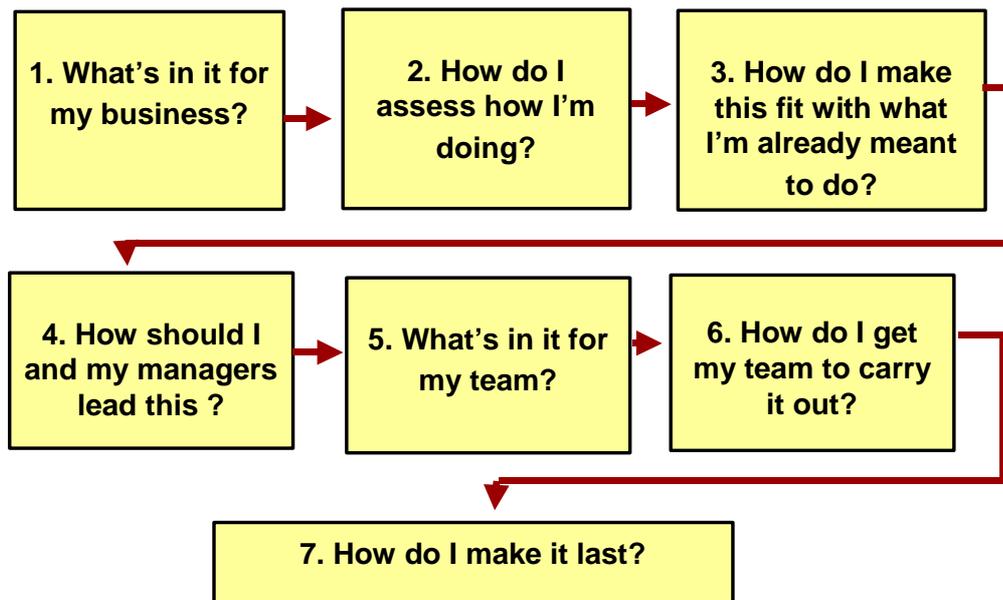


Figure 2: User-Centred Terms to Describe the Framework Content

The content of the toolkit as developed in Phase II has yet to be finalised. Further developments are planned for Phase III prior to its roll out. Such a toolkit should in principle provide the ‘bottom-up’ leverage necessary for encouraging wider uptake of BCWE by SMEs. Achieving optimal impact will, however, require that this toolkit be rolled out in conjunction with greater ‘top-down’ leverage being applied to the industry environment. Increased communication on BCWE at the industry level, and incorporating BCWE expectations into the procurement process should foster an industry environment that contains the necessary external incentives for SMEs to use BCWE. The ultimate aim of Phase III is to produce a toolkit, which will be in the public domain and free of charge to qualifying organisations.

2 METHODOLOGY

2.1 SAMPLE

It was agreed at the outset of Phase II in BCWE Forum and project steering group meetings that an opportunistic sample of eight SMEs would be approached to take part in the research. These would be recruited through BCWE Forum member and project steering team contacts, approached initially by BCWE Forum members (10 Principal Contractors). It was further agreed that the recruited SMEs would need to have had experience of working on small construction sites and be receptive to the principles of BCWE.

A breakdown of the eight SME companies approached to participate in this project by main work activities is provided in Table 1. (See [Appendix 1](#) for a copy of the interview invitation sent to the SMEs recommended by the BCWE Forum).

Table 1:⁴ Breakdown of SME sample by work activity.

Work activities	Demolition / site clearance	Design and build	Structures	Ground works	Mechanical & Electrical
	4	3	2	2	1

Of the eight SMEs approached, all agreed to participate in an interview with HSL researchers carried out in the early stages of Phase II (see Section 2.2.1 of this report). It was not possible, however, to arrange an interview with one SME who provided a written response to the interview topics/questions via email. Of the eight SMEs who contributed initially, only six took part in later feasibility testing of the toolkit once developed (see Section 2.3 of this report). One SME did not return the Confidentiality Disclosure Agreement prior to commencement of the feasibility testing and was therefore not sent the toolkit to review. Another SME did not complete the feasibility testing in the allocated timeframe.

2.2 PROCEDURE

Key methodological stages are summarised in Figure 3 overleaf.

⁴ N.B. Some enterprises are represented more than once under different work activities.

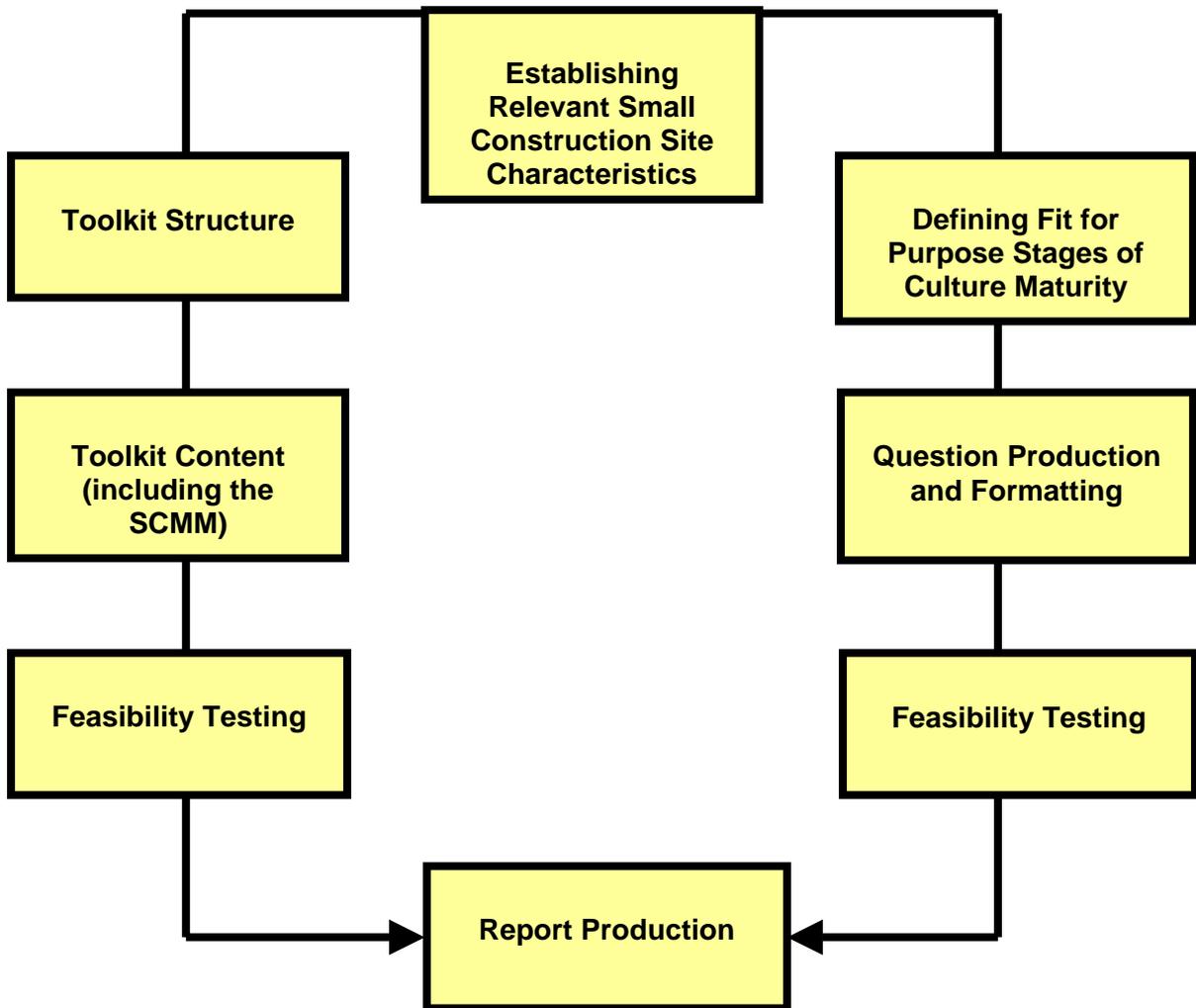


Figure 3: Key Methodological Stages of Phase 2

2.2.1 Establishing relevant small construction site characteristics

Establishing relevant small site characteristics that the toolkit needed to accommodate to ensure that development was tailored to its intended audience (i.e. construction SMEs) involved two stages. These were:

Stage 1 – Literature Review

A short literature review was conducted to identify the salient small site characteristics that needed to be accommodated by the toolkit.

Stage 2 – Interviews with construction SMEs

Interviews were carried out with seven construction SMEs to obtain their opinions on important small site characteristics that needed to be accommodated by the toolkit, how they currently measure health and safety and business performance, and common risk taking behaviours that occur on small construction sites. One SME responded to interview questions via email.

2.2.2 Determining the structure of the toolkit

A framework for the toolkit was developed in consultation with the project steering group to determine the specific content of the toolkit components (detailed in Section 1.2 of this report). Development of the framework drew upon the following information sources:

- Material provided by BCWE Forum members during Phase I.
- Findings from Phase I.
- Website searches of current BCWE practices and example tools for each component of the toolkit.
- Findings from the interviews carried out with the seven construction SMEs (and email response from the eighth SME).

2.2.3 Development of the actual toolkit content

Development of the actual toolkit content entailed the following stages:

Stage 1 – Literature Review

A short literature review was carried out to provide input into the business case to motivate managers to use the toolkit (*‘What’s in it for me and my business?’* – See Figure 2 in Section 1.2 of this Report).

Stage 2 – BCWE Forum Liaison

The project steering group liaised with the BCWE Forum to ascertain members’ opinions on the outputs from the literature review (Stage 1) and to seek any updates that could help shape the business case and feed into the moral and legal case.

Stage 3 - Development of the HSCMM

The HSCMM was developed by:

- Conducting a short literature review of the safety climate and safety maturity literature to specify maturity stages and elements.

- Running expert panel sessions (involving an internal HSL expert group and discussion with BCWE Forum members) to agree safety culture maturity stages and elements.
- Refining the content in the light of these expert panel discussions.
- Running a test-retest reliability check with BCWE Forum members (n=10).
- Conducting a feasibility test with six construction SMEs (see Stage 6 below).

Stage 4 – Development of the Remainder of the Toolkit

HSL researchers developed the remaining sections of the toolkit from knowledge of best practice according to the literature (as determined in Phase I), ideas generated from examining materials provided by BCWE Forum members/Principal Contractors during Phase I and insights into what would be feasible for construction SME dutyholders/managers to carry out through findings from the interviews with the seven SMEs (and email response from the eighth SME). Discussions with the project steering group and BCWE Forum also helped to shape the content of the toolkit.

Stage 5 - Incorporating HSE's Fatalities Work into the Toolkit

HSE's work by a Specialist Human Factors Inspector to identify the leading causes of fatalities within the construction sector was incorporated into the toolkit.

Stage 6 – Feasibility Testing the Toolkit

The feasibility/usability of the toolkit was discussed throughout its development with BCWE Forum members and tested on six SMEs that were interviewed at the start of Phase II (as documented in Section 2.2.1 of this report).

Stage 7 – Refinement of the Toolkit

HSL researchers refined the toolkit in light of the findings from the feasibility testing where possible.

3 RESULTS

Findings from the key stages of development of the toolkit, including the HSCMM, outlined in Section 2.2 of this report are summarised below. Links are provided to further information or full reports for each stage. The actual tools have not been included within these reports. The complete toolkit will be made publicly available following a more robust and extensive evaluation in Phase III.

3.1 LITERATURE REVIEWS

3.1.1 SME Characteristics

A short literature review carried out to identify the salient small site characteristics that needed to be accommodated by the toolkit revealed a number of key attributes of SMEs, and specifically SME construction sites, that need to be borne in mind. These represent decision-making, physical and social attributes. The main decision making attribute was that the SME owner is the dominant actor in relation to any changes that are made in the organisation. Key physical attributes included limited financial and human resources, poor work environment, poor health and safety management and a higher risk of severe and fatal accidents. Finally, the key social attribute was that SMEs tend to have better psychosocial work environments than larger organisations due to the formation of close, friendly and reciprocal relationships.

See [Appendix 2](#) for the full literature review.

3.1.2 Business Drivers

A short literature review was undertaken to provide input into the business case to motivate managers to use the toolkit, which revealed a small number of examples that could be taken from the literature. This included case examples demonstrating potential business benefits of implementing BCWE (e.g. reduced lost-time injury rates) and the positive impact of safety programmes on safety performance. Examples were also taken from the Seventh Behavioural Safety and Leadership Conference and Awards (2008) to illustrate the benefits accrued from award winners who had implemented behavioural safety programmes.

See [Appendix 3](#) for further details.

3.2 INTERVIEWS WITH CONSTRUCTION SMES

Typical SME characteristics, measures of health and safety performance and common risk taking behaviours found on construction SME sites were documented during the course of the interviews with the seven construction SMEs (and email response from the eighth SME). Analysis of the interview material revealed the following as key characteristics that the toolkit needs to accommodate: Lack of space/IT/resources, poor welfare facilities, high turnover, transient workforce, macho culture, bias towards reactive indicators, varied role of foreman, and lack of client knowledge about health and safety. Implications for the toolkit drawn out from the analysis highlighted the need for:

- A strong relevant business case to ensure SMEs provide the essential equipment that workers' need to behave and work safely, to encourage uptake and ensure commitment.
- A strong case to promote the importance of the use of proactive performance indicators.
- Access to the toolkit on site, being available in a variety of different formats to enable access and uptake. The toolkit needs to be intuitive and simple to implement.
- Information for company directors surrounding the importance of the provision of welfare facilities.
- Taking into account how companies go about engaging all levels of their workforce and portraying their health and safety values and attitudes.
- Methods of recording health and safety performance need to be simple and intuitive.
- Providing instruction on measuring occupational health and guidance on incorporating this into measurements of safety performance.

See [Appendix 4](#) for the full report.

3.3 STRUCTURE OF THE TOOLKIT

The framework developed in consultation with the project steering group can be found in [Appendix 5](#). This incorporates findings from the interviews with the seven SMEs (and email response from the eighth SME), findings from Phase I of the research, including materials provided by BCWE Forum members and Website searches. The framework details all the necessary elements relating to each component part of the toolkit (as detailed in Figure 1 in Section 1.2 of this report).

3.4 DEVELOPMENT OF THE TOOLKIT CONTENT

3.4.1 The HSCMM

The Rule of Thumb HSCMM was developed through a process of discussion and consultation with an HSL project team, internal expert panel and members of the BCWE Forum. It was decided that a combination of Fleming's Safety Culture Maturity Model and Westrum's Typology of Organisational Communication Model would be used to develop the measure. Elements within the model consisted of those that were common to all the models identified through the literature. It was essential that the elements captured the key aspects of behaviour change, namely worker engagement and organisational learning. Statements were generated by element, with one statement for each level of safety culture maturity. Solutions to enable an organisation to progress through each level were also generated. Emphasis was placed on developing a measure that was straightforward to use, with intuitive appeal. A test-retest reliability test was conducted with the ten forum members and suggestions for improvement incorporated into the measure.

See [Appendix 6](#) for the full report.

3.4.2 The Remainder of the Toolkit

The toolkit consists of seven sections (as detailed in Figure 2 in Section 1.2 of this report) and an initial ‘*How to use this toolkit*’ section. Using a range of information sources, HSL researchers developed the 26 information sheets, 18 templates and three training packs contained within the toolkit. HSE’s work on Fatalities in the construction sector (see [Appendix 7](#) for further information on this work) was also incorporated into the toolkit under exercises that management can run to motivate their workforce to behave safely. For example, exercises to identify immediate and more distal causes of lead the lead fatalities within construction and ‘what happened next?’ scenarios.

The full contents list for the toolkit can be found [here](#). The toolkit will be made publicly available following further development and refinement during Phase III.

3.5 FEASIBILITY TESTING OF THE TOOLKIT, INCLUDING THE HSCMM

Feedback via a questionnaire from the six SMEs that took part in the feasibility testing was subjected to thematic analysis. Overall, the toolkit was positively received and considered to be an effective tool to reduce risk-taking behaviour within the construction industry. A number of suggestions for improvement were made. Key changes suggested include the following:

- Condense the volume of information and present the toolkit electronically (e.g. via a web-based programme).
- Provide ‘model’ templates.
- Be wary of using statistics that may not coincide with SMEs own experiences.

A number of suggestions were also made to refine the HSCMM. These mainly concerned its structure/layout, scoring method and requests for completed examples.

See [Appendix 8](#) for the full report.

3.6 REFINEMENT OF THE TOOLKIT

HSL researchers refined the toolkit in light of the findings from the feasibility testing with the six SMEs where possible. A number of recommendations made by the SMEs for changes to make to the toolkit will be put forward to the BCWE Forum meeting on 30th March 2009. These represent changes to previously agreed tools between the project steering group and BCWE Forum members. Any subsequent changes, therefore, need to be considered in conjunction with the opinions and views of both groups.

4 NEXT STEPS

This report marks the conclusion of Phase II of the BCWE project in the construction sector. The content of the People First Toolkit has been developed and tested on six construction SMEs. Whilst the feedback provided from the SMEs was positive overall, a number of suggested changes to the toolkit need to be discussed between the project steering group and BCWE Forum members at the next BCWE Forum meeting on 30th March 2009. Some of these changes relate to the actual presentation of the toolkit (e.g. a preference for an electronic, interactive version than a hard copy), whilst other changes refer to improving the usability of certain elements of the toolkit (e.g. providing users of the Health and Safety Culture Maturity Measure with the ability to note their current position against their previous position)⁵. It is anticipated that Phase III of this project will take forward the decisions made at this meeting and focus upon developing the toolkit into a usable product for construction SMEs. This will include testing the toolkit on a larger sample of SMEs (approximately 20-30) than conducted to date as well as carrying out reliability and validity tests of the Health and Safety Culture Maturity Measure.

⁵ See [Appendix 8](#) for further details.

5 APPENDICES

5.1 APPENDIX 1: INTERVIEW INVITATION TO SMES INCLUDING INFORMATION AND CONSENT FORMS.

(See overleaf)



Enhancing Health and Safety Performance in Small and Medium Size Construction Companies – Development of a Know How Tool Kit



Dear **XXXX**

The Health and Safety Executive has commissioned the Health and Safety Laboratory to develop a 'know how' toolkit for small and medium (SME) sized construction companies (with 11-250 staff). This toolkit is intended to enable construction SMEs apply the principles of worker engagement and it will be aimed at small construction sites. The work will also draw on an earlier phase of research examining large construction companies' practices in this area.

We are currently recruiting a small sample of SMEs to undertake this work. Accordingly, your name has been recommended to us by _____ in their capacity as _____. We would need your help at two stages. The first would involve your participation in a research interview to obtain your opinions on:

- Important small site characteristics that the tool would need to address (e.g. restricted space, the number of tradesman on site at a given time, etc).
- How health and safety and business performance is assessed on small construction sites.
- Common risk taking behaviours that can occur on small sites.

This should take two to three hours of your time. In providing us with this information we ask that you respond from your perspective of small sites generally and not necessarily limit your responses to your own practices.

The second stage will occur three months later. For this stage we would like to ascertain your opinions on the feasibility of the actual content of the proposed toolkit. This will entail our sending you a draft of the content (N.B. please note this will be the proposed content and not the actual toolkit itself) with a small questionnaire for you to indicate how well you would think the toolkit would work. Again, this should take no more than three hours of your time.

Unless you expressly wish otherwise, we will keep your contribution to this research anonymous.

Please find attached:

- An information (Annex A) and consent form (Annex B) which specifies how we will maintain anonymity. If you are happy to participate please could you complete this and hand it to us at the time of the visit.
- A question schedule that illustrates the type of questions that we will be asking.

If you are willing to participate please can you let me know by **XXXX 2008**. Our contact details are specified in Annex A. Thank you for your help with this work. By participating, you will be contributing to important research for improving health and safety performance across the construction industry.

We look forward to hearing from you.

Yours sincerely

Jennifer Lunt
Project Leader
Health and Safety Laboratory

Who is conducting this research?

The Health and Safety Laboratory (HSL) is the research agency of the Health and Safety Executive (HSE). The research will be conducted by HSL on behalf of HSE. HSL staff are researchers, not inspectors.

What is the purpose of this study?

HSE are keen to develop a toolkit for small and medium sized construction enterprises (SMEs with 11-250 staff) for enhancing health and safety performance by encouraging wider uptake of worker engagement and related performance management strategies. The toolkit will be aimed at small construction sites. The purpose of this research phase will be to develop the toolkit's *content*.

What does the research involve if I agree to take part?

Your input would be required at two stages:

- The first would involve two researchers from HSL coming and interviewing you to obtain your opinions on (1) important small site characteristics that the toolkit would need to address (e.g. space restrictions, number of tradesman working on site at any one time, client consideration, etc.), (2) how health, safety and business performance is assessed on small construction sites, and (3) common examples of risk taking behaviour/practices that can occur on construction sites. Example questions are provided in Annex A. This should take no more than two hours of your time. One researcher will ask you the questions, the second researcher will take notes of your responses.
- The second stage will occur three months later. We will supply you with a draft copy of the content, and ask you to provide your opinions on its feasibility (e.g. ease of use, ease by which it can be understood and followed, ease by which it can be applied). This should take three to four hours of your time.

Will the information be treated in confidence?

If you choose to take part in this important research we ask that you complete the attached consent form. Within this consent form we ask whether you would prefer that your organisation's name is kept anonymous within the report and presentations arising from this research. If this is the case, we will provide your company with a pseudonym (e.g. company a, company b, etc) by which it will be referred to in the reports findings. Under no circumstances will personally identifiable information be made available in the report or subsequent presentations unless it is the express wish of the participants to do so.

Who else is involved in the research?

We are asking nine other small to medium sized construction companies to participate in this research utilizing contacts we already have with the construction industry.

Do I have to take part?

Taking part in this research project is entirely voluntary. If you do agree to take part you may withdraw from the research at any time without giving a reason. Also, feel free to ask the research team any questions during the research if anything is unclear. If, for whatever reason you are not happy to answer any specific questions, please make this known to the researcher, who will be happy to leave that topic and move to the next one.

Consent to take part

If you do decide to take part you will be given a consent form to sign, agreeing that HSL hold this information for research purposes only. Please provide this form to the researcher at the time of the visit. We would also ask that until this toolkit is published, you do not distribute any material that you are sent to anyone else outside your company.

What will happen after the study is completed?

The actual toolkit will be developed utilizing the findings of this research. This will then be piloted on a larger sample of construction SMEs.

Who is funding the research?

The study is funded by HSE.

What do I do next?

If you are happy to take part, or have further questions, please let us know as soon as is convenient. Contact details are as follows:

Jennifer Lunt/Victoria Bennett
Health and Safety Laboratory
Harpur Hill
Buxton
Derbyshire
SK17 9JN
01298 218373

Jennifer Lunt: (Project Leader)	Jennifer.Lunt@hsl.gov.uk	01298218373
Victoria Bennett:	Victoria.Bennett@hsl.gov.uk	01298 218565

CONSENT FORM

I confirm that I have read and understood the information sheet for the above study, and have had the opportunity to ask questions.

(Write or type initial or here).....

I prefer that my company's name is **not** used:

(Write or type initial here).....

For information, I agree not to distribute any of the material concerning the toolkit that I am sent to anyone outside of my company unless requested by HSE/HSL researchers.

(Write or type initial here)

I understand that participation is voluntary and that I may withdraw at any time, without giving any reason for doing so.

(Write or type initial here).....

I am happy for written notes to be made of my interview.

(Write or type initial here).....

I understand that any written records of my contribution will not be stored beyond the duration of this research or any follow-on research.

(Write or type initial here).....

Name of Volunteer
Date
Signature
Name of Researcher
Date
Signature
Date:

EXAMPLE QUESTIONS

This is to illustrate the type of information we will need from you. If you wish to complete this in advance of our visit and send it to us please do so.

Before completing the questionnaire please can you indicate:

1. Your company's name: _____

(This is to enable researchers keep track of responses. Your company's name will not be used in the report findings)

2. If you are a principal or sub-contractor (Please Circle)

Principal/Sub-contractor

3. Which of the following activities best describe your company's construction activities.

Demolition/ Earth Workers/ Structures/Fit Out/Mechanical & Electrical

Other: _____

4. How many people do you employ directly? _____

5. How many people do you sub-contract? _____

So that we can tailor the toolkit to small and medium enterprises working on small construction sites, we need more information on:

- Any site characteristics the toolkit would need to accommodate
- How health and safety performance is likely to be assessed on such sites
- How business performance is likely to be assessed by such SMEs, and
- Examples of common risk taking behaviour that occur on such sites.

We are not looking for exhaustive information. Rather, we are looking the first thoughts that come to your mind for each of these questions. Please can you complete the following, and return with the other information requested in this pack. In answering these questions, please answer from the perspective of your experience of small sites generally.

<p>A. What do you think are the top 5 characteristics/factors associated with small construction sites that this toolkit would need to take into account? (E.g. Site space, number or people working on the site, site conditions, duration of project, duration tradesman are on site?) (Please list)</p>			
1.			
2.			
3.			
4.			
5.			
<p>B. How do you think SME owners know if they've made any improvements in their health and safety performance? (Please circle appropriate response or responses)</p>			
1.	See/hear/ feel judgements (e.g. how safe it feels like to work on the site)	5.	Measure occupational health indicators
2.	Measure accidents/incidents	6.	Measure attitudes
3.	Measure near misses/learning events	7.	Measure actions implemented
4.	Measure lost time to accidents/incidents	8.	Measures worker engagement
9:	<p>Other (Please Describe):</p>		

C. How do you think SME owners know how well their business is doing? (Please describe)

--

D. In what ways do you see people taking risks on small construction sites? Please describe the 5 most common examples you come across and the trades to which it applies.

		Trade(s)
1.		
2.		
3.		
4.		
5.		

5.2 APPENDIX 2: LITERATURE REVIEW PROFILING IMPORTANT SME CHARACTERISTICS THAT THE TOOLKIT SHOULD ACCOMMODATE

(See overleaf)

1 INTRODUCTION

This work follows on from Phase I of a project undertaken on behaviour change and worker engagement (BCWE) within the construction industry. The Phase I research was commissioned by the Health and Safety Executive's (HSE's) Construction Division to establish:

1. The current scientific evidence base for good practice in BCWE.
2. Current BCWE practices used within the construction sector, their underlying rationale and effectiveness.
3. Potential differences between good practice, as identified by the literature review, and actual BCWE practices employed within construction sector.

The findings from Phase I of the research showed that construction SMEs are not a homogenous group. Nonetheless, within the somewhat sparser literature particular to SMEs is documented commonly occurring barriers. These should be taken into account when applying a BCWE programme to SMEs, and concern:

- Differences between how SME dutyholders view compliance relative to the expert view. Within SMEs, compliance appears more of a reactive activity, done in response to inspection or other health and safety related events (Fairman & Yap, 2005). Motives are therefore mainly external, stemming from a desire to avoid litigation, insurance claims or loss of business. Consequently evidence suggests that SMEs tend to prefer externally generated, prescriptive advice (Fairman & Yapp, 2005). SMEs are also more likely to judge non-compliance in terms of lag indicators such as accidents and incidents rather than lead indicators such as the quality of risk assessments.
- Differences between how compliance activities are undertaken, and how they should be undertaken. SMEs appear less inclined to systematically identify hazards on a regular basis, and weigh up the pros and cons of different controls according to the hierarchy of control principles (Fairman & Yapp, 2005; Macdonald, 2006). Rather, it seems that SMEs generally prefer to follow what they are told to do, or, rather, they follow their own interpretations of what they need to do. If a gap is not perceived between what is expected, and what is practiced, compliance activities are unlikely. Correcting this gap simply by providing more information could generate information overload (Fairman & Yapp, 2005).
- Biases that affect the decision-making of SME dutyholders. Since compliance can substantially diverge from formal models of risk assessments, decisions are much more prone to the risk perception biases of SME dutyholder's, or health and safety managers. Evidence derived direct from UK construction SMEs suggest that use of: 'trusted' contractors; those with an accident-free history and tendency to view risk in all or nothing rather than graded⁶ terms, means that SME owners can underestimate the degree of danger present on site (Macdonald, 2006).

⁶ This means that risk is considered as either present or absent, and not as present to a degree.

- Poorer accessibility to occupational health provision. This may be compounded by apparently greater tolerance that SMEs have of occupational health compared to safety risks. For example, a study of compliance practices within UK hairdressing SMEs (Fairman & Yap, 2006) found that 54% of employed staff had dermatitis, whereas just 2% had experienced accidents attributable to slips and trips. Yet it was slips and trips that were cited as the more common hazard. A long gap between exposure and harm, and difficulties in isolating cause, means that occupational health is more difficult to regulate. Lack of a clear legislative threat may further consolidate SMEs tolerance of occupational health risks (Stephens et al, 2004).

Those potential solutions recommended within the literature for overcoming such barriers include (Fairman & Yapp, 2007; Stephens et al, 2004):

- Using more personalised risk communication messages to ‘intrinsically’ motivate SMEs to engage in proactive compliance.
- Encouraging SMEs to conduct a ‘gap analysis’ whereby the difference between what they are actually doing, and what they should be doing, is systematically explored.
- Providing incentives for other activities that are not directly health and safety related, but from which health and safety benefits might be gained as a ‘side-effect’. An example of this is making PPE glasses ‘trendy’.
- For occupational health, (a) targeting the SMEs ‘gatekeepers’ (the SME ‘purse string holders’) through incentive or risk communication messages, and (b) more generally creating greater awareness of occupational health issues at a population level so that the workforce then expects their employer to observe occupational health obligations.
- Using an intervention attribute set as a template upon which to design an initiative. This encourages systematic consideration of direct and indirect task influences, positive, negative or global incentives⁷ to be used, and communication routes (e.g. post, email or face to face briefings) and mediums (e.g. written or verbal) (Stephens et al, 2004).
- Using first aid training to promote awareness of occupational health issues (Lingard, 2002).
- Combining health promotion messages with occupational health risk messages where there is a natural overlap (for example, encouraging exercise to reduce susceptibility to muscular skeletal disorders) (Sorensen et al, 2005).

Key considerations for Phase II of this research (i.e. the development of a toolkit for SMEs to use in order to implement their own BCWE practices) are summarised in Box 1.

⁷ Global incentives refer to rewards that are not personal or immediate. Recycling to preserve trees would be one example.

Box 1: Key Considerations for Phase II

Applying BCWE approaches to SMEs would need to take into account the potential intuitive nature of the compliance decisions made by SME dutyholders (Macdonald, 2006, Fairman & Yap, 2007).

A BCWE approach developed for SMEs would need to intrinsically motivate dutyholders to regularly address compliance issues (Macdonald, 2006, Fairman & Yap, 2007).

A BCWE approach developed for SMEs may need to adopt different strategies for occupational health than for safety (Stephen's et al, 2004).

Objectives

Phase II of the project aims to apply BCWE to construction SMEs. The present literature review therefore sought to identify the key characteristics of construction SMEs that such a toolkit would need to accommodate.

2 METHOD

A literature search was conducted using the following search terms:

- Characteristics of SME construction sites.
- Challenges of working on construction sites.
- Safety culture and SME construction sites.
- Behaviour on SME construction sites.

The search returned a large number of abstracts from various search engines these were as follows:

- 73 references from OSHROM.
- 25 references from Web of Knowledge.
- 19 references from Healsafe, iconda, Ei compendex, ROSPA database, ergonomic abstracts online and HSE library catalogue.
- 25 references from psycinfo.

Of the above 142 abstracts that the search returned, 38 full articles were retrieved after reviewing the abstracts for their relevance. Relevance of the articles was based on inclusion criteria, which included the year of publication (this excluded any research over 10 years ago, to ensure the literature was the most up to date) and inclusion of information on the decision-making, physical and social attributes of SME construction sites. The search returned articles from worldwide, however when sifting through the abstracts the researchers aimed to focus mainly on the UK. As there was little literature based in the UK, articles that fulfilled the inclusion criteria and were outside of the UK were also included. After reviewing the 38 full articles, 15 articles have been used to inform the results of the literature review, as they proved to include the most relevant information.

The full articles were then reviewed and data was entered into a data extraction sheet, the headings for which included Source, Industry, Country, Decision-Making Attributes, Physical Attributes, Social Attributes and Implications for the Toolkit. Quality of the articles was not reviewed due to time constraints.

3 RESULTS

The literature search returned a number of useful pieces of research, which demonstrate the key characteristics of SMEs in general, and SME construction sites. The following discusses these findings and the results of the literature review have been explained under the relevant headings based on the data extraction sheet mentioned in Section 2.

The statement below provides an overview of the key characteristics of small enterprises, as identified in the literature, which will be further discussed:

‘Characteristics of a small enterprise are usually centred on the owner or manager who, in addition to using specialist knowledge related to the product or service provided, also participates in every aspect of the business. They often adopt an informal approach to management, and work in an environment where both time and money are in short supply’ (Tait and Walker, 2000).

3.1 DECISION-MAKING ATTRIBUTES

The literature review demonstrated that there are key decision-making attributes that are typical of SME businesses, and of these, a number appear to be specific to SME construction sites.

A review of the literature on preventative occupational health and safety activity in small enterprises by Hasle and Limborg (2008) supports the above statement and suggests that in small enterprises the owner is emphasised as the dominant actor in relation to any changes that are made in the organisation. This is further supported by a number of other authors including Andersen, Kines and Hasle (2007), who also argue that the personal values and priorities of the owner are determinants of the culture, social relations and the attitude of the enterprise regarding the workplace.

Bougrain (2008) suggests that in SMEs the manager bears the responsibility of taking the decisions regarding all aspects of technical change. In small construction firms, in particular, the dominant role of the owner is a source of flexibility and adaptability to any changes in market conditions and client demands (Bougrain, 2008).

The literature also identified that for SME construction sites decision-making in terms of the wider industry is limited, due to their position in the industry. Holmes, Lingard, Yesilyurt and De Munk (1999) report that small business construction firms are often located at the lower end of the inter-organisational hierarchy and therefore their ability to exert influence on decision-making in the construction process is limited. This is further supported in later research carried out by Lingard and Holmes (2001).

The literature suggests that for SME construction businesses health and safety is an area that needs improvement. Small enterprises do not manage health and safety as effectively as large enterprises and it has been shown that there are higher accident rates in small enterprises in the UK, at least in some accident categories (Stevens, 1999). Small construction businesses in Australia have low expectations and accept the prevailing level of OHS risk in their environment. They are resigned to the fact that they have little input into decisions impacting the work environment. Cultural differences with regards to health and safety management may prevail, however, between Australia and the UK.

It would appear that for various reasons small construction firms do not apply health and safety principles as well as the larger businesses, and have difficulty in understanding what is required

of them, as employers. Walters (1998) suggests that health and safety performance of small enterprises is limited due to a limited knowledge of regulatory requirements, poor awareness of the economic advantages of health and safety, poor knowledge and understanding of safe working practices, short-term economic pressure and competition and inadequate enforcement and absence of preventive services. Also for SMEs, the immediate risks, e.g. falls from height, tend to be perceived as more important than the latent risks, e.g. skin disease. Employers tend to adopt a fatalistic attitude for the longer-term risks (Holmes et al, 2000).

The decision by small enterprises and in particular small construction sites, not to manage health and safety effectively may be down to a lack of understanding rather than a conscious decision. Mayhew (1995) found that small business employers in Queensland's construction industry have a poor understanding of their responsibilities under OHS law.

Another decision-making attribute of SMEs identified in the literature is that they tend to assume proportionally greater business risks (Smith and Bohn, 1999). Owners/Managers are also less likely to formulate business plans when starting up their business and are more likely to go by informally absorbed information derived from previous experience (Greenbank, 2000).

3.2 PHYSICAL ATTRIBUTES

The review of the literature showed that there are a number of physical attributes that can be associated with SMEs in general and also to construction SMEs more specifically. In terms of workload and work environment, research suggests that the ergonomic, physical and chemical work environment is more hazardous in small enterprises than in large ones (Sorensen, Hasle and Bach, 2007). The authors, therefore report that the smaller the enterprise, the more hazardous the work environment.

A key physical characteristic of SMEs, which is evident from the literature, is the limited economic and human resource (Hasle and Limborg, 2008; Bourgrain, 2008). Work conditions of SMEs are often characterised by high work demands, time pressures and heavy physical work (Andersen et al, 2007).

The literature also indicates that there are a number of key physical attributes of SMEs in relation to health and safety. Overall research seems to conclude that health and safety is less well managed within SMEs. In particular, Sorenson et al (2007) report that the quality of health and safety management systems is much higher in larger organisations compared with smaller organisations. Due to fewer resources for Occupational Health and Safety (OHS) work, small enterprises have more problems in this area. Therefore, small businesses frequently lack the expertise of Occupational Safety and health professionals for identifying specific hazards and preventing them (Greife, Lentz & Wenzl, 2006). Greife et al (2006) also suggest that small/medium sized employers rely more often on Trade Associations for safety training materials and use safety incentive programs less frequently than larger construction firms.

Sorenson et al (2007) also found that there is a higher risk of severe and fatal accidents in small enterprises, and the numbers of lost days are consistently found to be higher in small compared to medium and large enterprises. Smaller enterprises have higher rates of major injuries than larger enterprises (Walters, 1998). Sorenson et al (2007) further noted that smaller enterprises have fewer minor injuries than large enterprises, although this may be due to underreporting. Hasle and Limborg (2008) concur with the above research and suggest that there is strong evidence for higher accident risks in small enterprises. They argue that the risks are higher yet the ability to control those risks is lower.

Research by Hasle and Limborg (2008) found that the most effective preventative approaches, in terms of the risks in small enterprises, are simple and low cost solutions that are disseminated through personal contact.

3.3 SOCIAL ATTRIBUTES

The literature review revealed that in terms of social attributes, SMEs are characterised as having better psychosocial work environments than larger enterprises, with employees having a greater degree of autonomy in work planning and more influence on their own work situation (Sorenson et al. 2007; Hasle and Limborg, 2008; Andersen et al, 2007).

Hasle and Limborg (2008) report that these better psychosocial work environments are ascribed to close relationships. Owners of small enterprises often have close, friendly and reciprocal relationships with their employees and many managers minimise status distinctions between themselves and their employees (Andersen et al, 2007).

4 CONCLUSIONS

4.1 IMPLICATIONS FOR THE TOOLKIT

The review of the literature on characteristics of SME construction sites makes it clear that there is a need to improve health and safety management within such businesses. Cruder health and safety management systems need to be integrated into SMEs than those that currently exist. Due to a lack of resources within small enterprises, such systems and solutions would need to be in line with the tight budgets of the businesses and therefore need to be kept low cost. To ensure buy in by managers/owners the toolkit should target the commercial benefits and therefore the business case for SMEs.

Based on the literature it would seem that simple solutions are needed to improve health and safety management systems as it would appear that currently there is inefficiency through not applying integrated management systems. Such solutions would need to be in line with the face-to-face communication culture of SMEs and the toolkit will ideally be optimally straight forward.

4.2 OVERALL SUMMARY

The literature review has identified a number of key characteristics of SMEs and specifically SME construction sites (see Table 1 for summary). These attributes can be divided into decision-making, physical and social attributes. The main decision making attribute of SMEs is that the owner is the dominant actor in relation to any changes that are made in the organisation. The key physical attributes of SMEs include, limited financial and human resources, poor work environment, poor health and safety management and a higher risk of severe and fatal accidents. Finally, the key social attribute of SMEs is that they tend to have better psychosocial work environments than larger organisations and this is due to close, friendly and reciprocal relationships.

What do we know about construction SMEs?	
Resource Limitations	<ul style="list-style-type: none"> • Poorer quality health and safety management systems than in larger companies. • Insufficient integration of management systems. • Preference for low cost solutions.
Social Attributes	<ul style="list-style-type: none"> • Close knit social bonds.
Decision Making	<ul style="list-style-type: none"> • Informal/Intuitive – experience led. • Use trusted sources. • Risk averse to new markets. • Risk averse to trusting staff with decision making.
Influence	<ul style="list-style-type: none"> • Limited upwards influence on construction industry.
Attitudes	<ul style="list-style-type: none"> • Fatalistic attitudes to occupational health risks (e.g. skin disease).

Table 1: Summary of Toolkit Relevant SME Characteristics

5 REFERENCES

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5.3 APPENDIX 3: LITERATURE REVIEW PROFILING THE BUSINESS CASE EVIDENCE FOR BCWE INITIATIVES

1 AIMS AND METHODOLOGY

1.1 Objectives

The literature review sought to identify:

Any references that provide evidence that demonstrate that interventions (e.g. Behavioural Safety and Worker Engagement Programmes) have a positive impact in terms of health and safety, business and process outcomes. In particular references were sought that presented facts and figures to demonstrate that a positive impact had been achieved.

1.2 Search Strategy

In reviewing literature for this project a team of Information Specialists from the HSE Information Centre were able to identify appropriate papers from a range of databases and other information resources such as the Internet. The team of information specialists were provided with a the following key words; business case, construction, worker engagement, behavioural safety, behavioural change, culture change, health and safety, financial indicators/outcomes, leading/lagging indicators and key performance indicators.

1.3 Search Sources

Sources used for the search can be categorised as follows:

- **Academic databases:** E.g. SciSearch, Ergonomics Abstracts and Psychinfo.
- **Health and Safety Related Databases and documentation:** E.g. HSEline, HSL database and the HSE intranet.
- **Construction industry publications:** E.g. Journal of Construction Engineering and Management.
- **Website Searches:** E.g. Google, construction industry organisations (construction company websites).

1.4 Spreadsheet

A data extraction sheet was designed to facilitate the collection of salient information and the presentation of this information. The categories of interest were; the source, industry and country of origin, intervention (e.g. health and safety, behavioural safety or culture change),

business outcomes, health and safety (H&S) outcomes, process outcomes, additional information and comments on the quality of the articles.

1.5 Attendance of the 7th Behavioural Safety and Leadership User Conference and Awards 2008

This conference was attended to uncover whether there was any clear evidence (H&S, business and process outcomes) that the Behavioural Safety programmes under discussion had been a success.

2 RESULTS

2.1 Spreadsheet

Six research papers from the data extraction sheet stand out as providing some empirical evidence to support applying behavioural change and worker engagement practices to small and medium enterprises. These are as follows:

2.1.1 Peckitt S. and Coppin S. (2005) Detailed research that identified clear business, health and safety and process outcomes to a safety culture change initiative applied to the four year refit programme of the Department for Work and Pensions (DWP) Job Centre Plus (JCP) offices around the UK.

The business outcomes at the time of writing reported that the current annual rates of all RIDDOR-reportable accidents on JCP sites were around a quarter of the national industry average. Based on the fact that HSE guidance purports that accidents cost up to 8.5 per cent of construction tender price, savings in the region of £40 million are likely to have accrued on the JCP project from reduced accident rates.

The health and safety outcomes were that the accident rate frequency for 2001/2002 was 1,145, for 2002/2003 it was 723, for 2003/2004 it was 208.36, for 2004/2005 it was 171.5 and from April 2005 to August 2005 it was 0.

As a process outcome it is reported that 'the approach employed on the JCP project changed attitudes and behaviours, countering negative characteristics of the construction industry's safety culture such as adversarial relationships.

2.1.2 Goodrum P.M., and Gangwar M. (2004) assessed the effectiveness of safety incentive programmes that use positive reinforcement to encourage safe behaviour. Based on the results of administering employee surveys the researchers found that the experience modification ratings (employees experience and perceptions of a company's safety over an average of three years) were lower for employees of company's that had introduced a safety incentive programme, indicating they had a more positive experience/perception of the company's safety performance. The business outcome was that it was found that companies that have a safety incentive programme do have lower lost-time incidence rates and restricted incidence rates.

2.1.3 Poon W.F., Ma C.H., and Ho K.L. (2000) analysed the correlation between elements from the safety management system introduced as part of the new Hong Kong regulations. Analysis indicated that the elements that had a significant correlation with the site accident rate were; safety policy, safety organisation, safety audit, safety committee, emergency preparedness, in-house safety rule, safety orientation, safety promotional programme, accident reporting programme, accident investigation programme, personal protection programme, process control programme and management involvement.

2.1.4 Aksorn T., and Hadikusumo B.H.W. (2008) studied the positive impact of safety programmes on safety performance. They found that Safety programmes that positively affect accident rates include accident investigations, jobsite inspections, control of subcontractors and safety incentives. Those that were found to contribute to fewer unsafe acts (through the use of an observational checklist; the product of which is an unsafe act index) were jobsite inspections, accident investigations, job hazard analysis, safety committees and safety record keeping. The safety programmes that were found to be most effective in reducing unsafe conditions were accident investigations, jobsite inspections, job hazard analysis, safety inductions and safety auditing.

2.1.5 Baggs J., Silverstein B., and Foley M. (2003) set out to determine whether enforcement programmes had a positive impact on compensation claims. The rates of annual compensations claims (from the state fiscal year 1997 through to the state fiscal year 2000) declined 22.5% in fixed site industry for employers with enforcement programmes, compared to 7% among employers with no enforcement activity. For non-fixed sites (e.g. construction) the claims rates declined 12.8% for employers with enforcement activity compared to a 7.4% for those with no enforcement activity.

2.1.6 Harter J.K., Schmidt F.L., and Hayes T.L. (2002) looked at the relationship between worker engagement and business outcomes. The data indicated that workplaces with engaged employees, on average, do a better job of keeping employees, satisfying customers, and being financially productive and profitable. Researchers found that business units in the top quartile on employee engagement averaged \$80,000 to \$120,000 higher revenue or sales. Profitability was calculated as a percentage profitability of sales and on average business units in the top quartile on the employee engagement measure produced 1 to 4 percentage points higher profitability.

2.2 The 7th Behavioural Safety and Leadership User Conference and Awards 2008

The winner of the Allan Poole Award for 2008⁸ was Twinings. As part of their safety culture Twinings measure proactive and reactive key performance indicators. The proactive indicators are senior management involvement, departmental involvement (safety audits and tours) and employee involvement. The reactive indicators are RIDDOR notifications, lost time to incidents

⁸ *The Allan Poole Trophy is awarded at this conference to the organisation with the most outstanding behavioural safety initiative of the year.*

and TwO AIIR (which measures an incidents severity rather than its frequency). The proactive indicators illustrate that senior management activity had risen from 69.34% in 2006/07 to 69.75% in 2007/08, the results for departmental involvement had not be calculated and an approximation of the number of safety audits/tours was presented. For the reactive indicators there had been a year on year decrease of both RIDDOR notifications and lost time incidents. For RIDDOR this decrease was from 1.44% in 2005/06 to 1.00% in 2006/07 to 0.63% in 2007/08. For lost time incidents the decrease had been from 2.11% in 2005/06 to 1.00% in 2006/07 to 0.68% in 2007/08. The TwO AIIR results were quoted as being 2325 for 2005/06, 2295 for 2006/07 and 2344 for 2007/08, therefore over this timeframe no decrease was evident.

The runner up for the Allan Poole Award for 2008 was Interserve. One of their main initiatives was the introduction of an auditing/reporting tool known as 'Changing Attitudes Towards Safety' (CATS). This was described as a proactive incident prevention database. The total number of unsafe acts reported to date on CATS was reported to be 5,222. It was proposed by Paul Richards of Interserve that this was evidence that to date Interserve have prevented 5,222 potential incidents.

Susannah Robertson of Robertson and Cooper Ltd included in her presentation an outline of some studies that have provided evidence of an organisational-level impact of psychological well-being. These studies were reviewed and entered into the data extraction sheet.

Other presenters outlined various behavioural safety interventions but there was no empirical research presented to show that these interventions had had any successful health and safety or business outcomes. For instance, Helen Sully from the Kier Group outlined the improvements that had been made with regard to worker engagement within her organisation. The emphasis was on toolbox talks that were specifically designed to change key behaviours that had been identified as critical to reducing accidents, including; walking by, working at heights, distraction and cutting corners. Some data was collected from the delegates at the toolbox talks with regards to experience of the key behaviours, but this data was not presented and would address the objective of providing evidence that demonstrates that interventions have a positive impact in terms of health and safety, business and process outcomes.

5.4 APPENDIX 4: REPORT OF FINDINGS FROM SME INTERVIEWS

See overleaf.

EXECUTIVE SUMMARY

Background

This piece of work follows on from an earlier phase (Phase I) of a project concerned with establishing current practices within the UK construction sector in developing and applying behaviour change and worker engagement (BCWE) practices intended to improve health and safety performance. It was found that to improve health and safety practices across the industry, construction small to medium sized enterprises (SMEs) need support in implementing BCWE initiatives. Phase II of the research was therefore commissioned by HSE to develop a toolkit for construction SMEs that would assist them in improving their health and safety performance.

Objectives

This work represents an earlier stage of the development process of the toolkit, currently referred to as the 'People First Toolkit'. To ensure that the toolkit is appropriately tailored to its intended audience, it was deemed necessary to determine the characteristics of construction SMEs that the toolkit needs to take into account. This was achieved by carrying out case study interviews with seven construction SMEs and an additional SME that provided answers via email.

Main Findings

Typical SME characteristics, measures of health and safety performance and common risk taking behaviours found on construction SME sites were documented during the course of the interviews. Analysis of the interview material revealed the following as key characteristics that the toolkit needs to accommodate: Lack of space/IT/resources, poor welfare facilities, high turnover, transient workforce, macho culture, bias towards reactive indicators, varied role of foreman, and lack of client knowledge about health and safety.

Recommendations

The recommendations contained in this report have provided valuable contextual information to feed into the development of the toolkit (e.g. to inform the style and type of information included). Implications for the toolkit drawn out from the analysis highlighted the need for:

- A strong relevant business case to ensure SMEs provide the essential equipment that workers' need to behave and work safely, to encourage uptake and ensure commitment.
- A strong case to promote the importance of the use of proactive performance indicators.
- Access to the toolkit on site, being available in a variety of different formats to enable access and uptake. The toolkit needs to be intuitive and simple to implement.
- Information for company directors surrounding the importance of the provision of welfare facilities.
- Taking into account how companies go about engaging all levels of their workforce and portraying their health and safety values and attitudes.
- Methods of recording health and safety performance to be simple and intuitive.
- Providing instruction on measuring occupational health and guidance on incorporating this into measurements of safety performance.

1 INTRODUCTION

This piece of work follows on from an earlier phase (Phase II) of a project concerned with establishing current practices within the UK construction sector in developing and applying behaviour change and worker engagement (BCWE) practices intended to improve health and safety performance⁹. It was found that to improve health and safety practices across the industry, construction small to medium sized enterprises (SMEs) need support in implementing BCWE initiatives. Phase II of the research was therefore commissioned by HSE to develop a toolkit for construction SMEs that would assist them in improving their health and safety performance.

This work was carried out as part of the development process of this toolkit, currently referred to as the 'People First Toolkit'. To ensure that this toolkit is appropriately tailored to its intended audience, it is necessary to determine the characteristics of construction SMEs that the toolkit needs to take into account. This report details the results of seven case study interviews with construction SMEs (and one SME who provided information via email) carried out to determine typical SME characteristics, measures of health and safety performance and common risk taking behaviours found on construction SME sites. The information contained in this report has provided valuable contextual information to feed into the development of the toolkit (e.g. to inform the style and type of information included).

⁹ See Lunt J., Bates, S., Bennett, V., & Hopkinson, J. (2008). Behaviour Change and Worker Engagement Practices in the Construction Sector. *HSL Report: WPS/08/15*.

2 METHOD

2.1 RECRUITMENT OF PARTICIPANTS

Forum members were asked to nominate suitable SME contacts and requested to initially approach them on the projects behalf. Following this, the HSL project team made further contact with the companies to discuss the project in more detail and arrange a meeting.

The companies were approached and asked to assist HSL in two ways. The first was to allow a visit to the company by HSL to carry out a structured interview. This was to ascertain their opinions on important SME site characteristics that a toolkit should take into account, how the company assesses health and safety and business performance and examples of common risk taking behaviours found on SME construction sites. At a later stage, companies were asked if they would test the usability and feasibility of the toolkit content and provide appropriate feedback. The results of the feasibility study are not reported here.

The aim was to recruit ten companies and have face-to face meetings with each. To ensure the sample obtained was representative, the objective was to have both principal and non-principal contractors for each stage of the construction process and at least one SME representing each of the groupings¹⁰ shown in Table 1.

Work activities	Demolition	Earth Workers	Structures	Fit Out	Mechanical & Electrical
Principal Contractor	1	1	1	1	1
Sub-contractor	1	1	1	1	1

Table 1: Potential recruitment of different construction companies

2.2 INTERVIEW METHODOLOGY

Structured interviews were carried out with key members of each company involved, such as the health and safety manager, managing director and other relevant company directors. Some interviews were one to one interviews, whereas other companies chose to have two members of the company present. These operated as group interviews. One company were unavailable for interview and consequently provided their responses to the structured interview questions via email.

The interviews were not digitally recorded but permission was sought to make notes during the interview. Participants were asked to sign a consent form and any questions they had were answered. Participants were given detailed information on the background of the project. All interviews lasted between thirty and ninety minutes.

The structured interview asked questions on the following topics:

- Demographic information, including typical work activities and staff employment.

¹⁰ These groupings were derived through discussions with the project's steering group.

- ❑ Any site characteristics or factors associated with typical construction SMEs that the toolkit would need to accommodate.
- ❑ How health and safety performance is likely to be assessed and measured.
- ❑ How business performance is likely to be measured by SMEs.
- ❑ Examples of common risk taking behaviours that occur on SME construction sites.

Copies of the interview schedule were sent to the participants prior to the interview so that they could familiarise themselves with the question set and gather together any necessary information. Participants were also asked if they would submit any risk assessments and method statements to be anonymised and considered for inclusion in the toolkit.

2.3 INTERVIEW ANALYSIS

For each structured interview conducted (and the email response from the eighth SME) the notes taken were written up into a case study format to ensure a full and consistent understanding of the health and safety practices and characteristics of each SME construction company. These case studies have not been included in this report to protect the anonymity and confidentiality of those involved.

To collate all of the information obtained in the interviews, a data extraction spreadsheet was created using the following categories:

- ❑ Demographic information – company name and location, type of contractor, typical work activities and staff employment information.
- ❑ Typical characteristics associated with SME construction sites.
- ❑ Health and safety performance indicators.
- ❑ Methods of assessing business performance.
- ❑ Common risk taking behaviours on SME construction sites.
- ❑ Other relevant information.
- ❑ Recommendations for the development of the toolkit.

The information obtained from the interviews and email response was then input into the spreadsheet and categorised according to relevant themes. The themes created were double checked by another member of the HSL project team to ensure consistency and reliability.

3 RESULTS

3.1 DEMOGRAPHIC INFORMATION

Location

Eight companies took part in the research, with the majority taking part in a face-to-face interview. One company chose to email their answers to the HSL research team. All companies were located across the United Kingdom (UK), within England and Wales.

Contractor type

Table 2 details the percentage split between principle and subcontractor work carried out within the eight companies. It indicates that the majority of companies operated primarily as a principal contractor, with two companies operating solely as a sub contractor.

	Principal	Sub contractor
Company A	80	20
Company B	80	20
Company C	100	
Company D	100	
Company E	100	
Company F		100
Company G		100
Company H	50	50

Table 2: Proportion of principle and subcontractor work carried out in each company.

Staff employment

Table 3 indicates that the number of directly employed staff across the companies interviewed ranged from 35 to 150, with the exception of one company who directly employs between 600 and 700¹¹ staff. However, the latter company operate as several, separate, small business groups.

Of those who employ sub contractors, the number of staff across the companies interviewed ranged from 15 to 180.

¹¹ This contractor was included due to its experience of having worked on small construction sites.

	Direct employees	Subcontracted employees
Company A	600-700	40
Company B	35-50	0
Company C	50	150
Company D	150	0
Company E	110	20
Company F	90	180
Company G	55	15
Company H	65	0

Table 3: Demographic information on company employees

Work activities

Table 4 indicates that the majority of companies interviewed carried out demolition and design and build work. It should be borne in mind that some companies carried out more than one type of work activity.

Work activities	Demolition / site clearance	Design and build	Structures	Ground works	Mechanical & Electrical
	4	3	2	2	1

Table 4: Work activities carried out across all eight companies

3.2 CHARACTERISTICS ASSOCIATED WITH SMALL CONSTRUCTION SITES

Site / work environment

Several issues emerged from six of the companies interviewed relating specifically to the work / site environment. One of these issues concerned the **lack of space available** on a small construction site. It was felt that the toolkit should take into account the lack of space available on SME construction sites, as it can be difficult to manoeuvre vehicles and equipment efficiently. Other companies pointed out that both **access** and **egress** to a site is a common characteristic that should be taken into account. Logistical problems can occur when trying to get tools onto sites. For example, the lack of space means that getting ladders on site can be difficult, making working at heights a major concern. Issues can arise when vehicles are reversing, with one company stating that vehicles are not fitted with warning sounds. Often clients can exacerbate the problem, as they require the least amount of disruption, meaning that the site contractors are working on can be very small.

Further issues relating to the work environment concerned **poor housekeeping** and the tidiness of the work area. One company stated that often the sites are small and lack the necessary facilities to capture and record all aspects of the job effectively. A **lack of IT facilities** and filing systems results in health and safety being less well managed. For some companies it can mean that risk assessments are not kept on site.

One company pointed out that **members of the public** and staff could pose a big problem. Some projects can involve working in an organisation where the staff carry on working within the organisation, e.g. hospitals. Consequently, they have a lot of interface with these groups.

Welfare

Four companies discussed the difficulty of providing welfare facilities on SME construction sites. Some clients do not allocate a site compound to staff, leaving employees with **no welfare facilities** available. The duration of a contract can have a bearing on site health and safety. As it can take up to ten weeks to install welfare facilities, if the contract is of short duration, the likelihood of providing the necessary facilities is low. This can lead to poor working relationships between employer and employee.

One company who often work with smaller contractors highlighted a further issue related to general welfare. They noted the very different values placed on health and safety practices between different contractors. This can make it very difficult to work with contractors.

Turnover / transient nature of workforce / subcontractors

Four companies commented on issues relating to the transient nature of the workforce and characteristics concerned with the use of subcontractors. Often the **continual turnover of staff** can mean that communicating health and safety messages and obtaining buy in from all staff is difficult. The problem remains that turnover is gradual and continuous rather than occurring at a single point in time. This makes capturing all staff's health and safety needs and reviewing training difficult.

A link was made between the small size of SMEs and the employment of subcontractors. Due to company size and lack of time, it was felt that SMEs are **unable to check subcontractor's health and safety qualifications**. Added to this difficulty are the different health and safety standards that different companies abide by, meaning subcontractors may follow different and sometimes poor standards of health and safety practice. One company noted that SME construction companies tend to employ other micro businesses. These smaller businesses tend to have limited health and safety knowledge and their level of training and expertise in health and safety can also be challenging.

The **type and quality of subcontractors** was also felt to impact on health and safety standards. One company highlighted that subcontractors can be difficult to manage. As there exists a range of sizes of subcontractor organisations, it was noted that larger subcontractors deliver more acceptable safety related paperwork because they are familiar with applying the higher standards. It was stated that very small subcontractors ('one-man-bands') tend to provide less adequate safety related paperwork.

A further issue related to the duration that tradesmen are on site.

Resources – time, equipment and staff

Issues concerning a lack of resources including both time, equipment and staff were discussed by three of the companies interviewed, as characteristics typical of construction SMEs.

With regards to health and safety training, SMEs are often limited by budget and size to implement initiatives fully. They often do training in-house but either have **limited or no specific training facilities**. Consequently, it can take time to organise and prepare courses. It was stated by one company that often a risk assessment is carried out to determine the necessity of extra training.

A further issue relates to subcontractors who believe additional health and safety training is a waste of time and money and often refuse to put their staff through it. As it falls to the site manager to decide if the subcontractor leaves the site due to lack of health and safety

qualifications, one company pointed out that they need the necessary senior management support.

A related issue concerns a **lack of staff resource**. Whilst larger sites can afford to send operatives off-site for safety infringements, as work can usually be covered, often SMEs will only have one electrician working on site. Consequently they cannot afford the time or money for this individual to leave site, as this would impact on the work being completed.

According to one company, time pressures and short duration work lead to **staff often taking short cuts**, particularly if monitoring is poor. Time pressures also typically result in paperwork becoming a tick-box exercise. SMEs also have **limited time for planning**. One company noted that typically they only have approximately two weeks lead into a project. Short duration projects can also mean that the SME has very little IT facilities on site. Usually they will only have a telephone, as the project can be completed within three or four months.

Regarding budgets for health and safety equipment, one company noted that larger contractors interpretations of the work at heights regulations is causing problems for SMEs, as there are added costs for the different equipment. They pointed out that 70% of their main contractors have not allowed for the buying of stepladders.

Role of site foreman

The role of the site foreman was a characteristic noted by three of the companies interviewed. Typically, on construction SMEs the **site foreman has a wide job role** encompassing a great many responsibilities. Consequently, they do not have time to read and implement vast amounts of guidance. Companies pointed out that the site manager is responsible for implementing health and safety procedures, but with the poor attitude and reluctance of staff, the site manager needs senior manager support to do this effectively. One company stated that gaining staff buy in could be difficult.

A further issue was pointed out by one company that the lack of clear management supervision and enforcement on SMEs results in cutting corners with respect to health and safety.

Culture

Two companies noted typical cultural characteristics of construction SMEs. One company highlighted a difficulty in changing people's attitudes to health and safety, due to prevalence of the **macho culture** in SME construction sites. Encouraging employees to wear the appropriate PPE and conveying the importance of health and safety can be challenging. It was also noted that **poor staff attitude** can still lead to breaches of the rules.

One company pointed out that the **remoteness from systems and procedures** results in safety being taken less seriously on small sites. They stated that larger sites do not have this culture, due to the structures being in place.

Clients

Clients were highlighted by two companies as another key factor specific to construction SMEs. It was noted that they often have a **minimum understanding of health and safety requirements** and fail to appreciate the difficulty site owners have in enforcing positive health and safety practices without client support. Other risks to be dealt with prior to the start of a project can also delay the start date. Ensuring the client is aware of time delays was highlighted as a problem, relating to their lack of understanding of health and safety procedures.

A further issue here relates to client safety rules, in that most small projects are carried out in existing premises.

Communication

Four companies outlined issues that related specifically to communication on site. One company explained that the employment of **foreign workers creates a language barrier** in being able to communicate health and safety messages effectively. Another company stated **communication with other trades** is a common characteristic of a construction SMEs and that communicating safety meetings and audits occurs regularly on sites. A further issue related to the distracting effect of the use of mobile telephones by construction site staff, which one company stated should be banned.

Other characteristics

PPE is paramount to the work carried out by construction SMEs. It was felt by one company that gloves, goggles, hardhats, and safety boots were considered essential aspects that the toolkit should take account of.

The **poor literacy skills of staff** (as noted by one company) was felt to be very common to most construction SMEs. This means that despite being able to read and write, their poor level of understanding can often lead to health and safety being carried out incorrectly.

One company highlighted an issue related to the **monitoring process of a behavioural change initiative**. It was suggested that initiatives have a natural shelf life so to avoid the process stalling. It is important to maintain momentum by constantly re-engaging with staff.

3.3 HEALTH AND SAFETY PERFORMANCE INDICATORS

See / hear / feel judgements

All companies reported using see/hear/feel judgements to measure health and safety performance, recognising them to be the most important to construction SMEs. Some companies stated that when managers and site safety officers visit sites they could ascertain quickly whether or not health and safety practices are being adhered to by looking for cleanliness, seeing if employees are wearing appropriate PPE and whether the job has been set up correctly. They noted the importance of management visibility in order to ascertain views and assess health and safety. One company noted that by physically being out on site they are able to what is happening in practice. It was also noted that there is a link between good health and safety, site housekeeping, and financial performance.

Accidents / incidents

Seven of the companies interviewed reported using the measurement of accidents and incidents to determine their health and safety performance. It was recognised by most as an industry-wide measure of health and safety performance, primarily due to the legislative requirement of this type of recording. Measuring accidents/incidents and non-compliance were also highlighted as one of the principal methods that SME owners use to determine any improvements in their health and safety performance and indeed reductions in accidents.

Two companies stated that they use these measures to produce reports, which are presented and discussed at board level. All accident and lost time incident statistics are reviewed every 12

months to identify trends or training needs. However, one of the companies expressed concern at being able to interpret statistics, lacking the time to interpret them in a meaningful way and provide staff with appropriate feedback. The company also pointed out that they discuss accident statistics during health and safety committee meetings, whilst another stated that KPI's are also monitored.

The employment of external consultants to identify health and safety issues was noted by one company who carry out any necessary analysis to identify where improvements are needed using a structured audit tool, and then provide the company with a report.

Lost time incidents

Lost time incidents were monitored and recorded by four of the companies interviewed yet uncertainty prevailed as to whether this is something that would be measured by other construction SMEs. One company stated that they discuss these at board level with statistics being used to identify trends over time.

Occupational Health

The use of occupational health indicators was employed by three of the companies interviewed. However, a further two companies made some attempt at measuring it informally and believed it to be important. One company noted the heavy weighting of safety compared to health when budgets are allocated.

Companies provided reasons as to why occupational health was not measured. These included a lack of instruction from government bodies on how to measure occupational health effectively, cost and staff reluctance to participate in health checks. One company interviewed had an occupational health program in place and carried out health checks on staff every two years. Another company stated that whilst they do not routinely measure occupational health indicators and staff attitudes for subcontractors, they do use local medical practices to assess the health of their direct employees.

Near misses

The measurement of near misses was only reportedly carried out in two of the companies, one of whom reported that although they captured the information, it was not done as effectively as it could be.

Three companies noted the importance of measuring near misses and whilst they strive to do so, they admitted that it rarely happens and believed most SMEs would hold a similar opinion. One company reported that SMEs fail to see any benefit in reporting them and lack the necessary knowledge and understanding of what constitutes a near miss.

One company stated that encouraging site managers to spend time completing the necessary paperwork could be difficult. Although all accident report forms are designed to encourage easy completion, uptake is poor. They believed site managers are wary of completing them for fear of reprisals. However, they pointed out that any accidents and near misses are discussed at the health and safety committee meetings where appropriate action is taken.

Actions implemented

Two companies reported measurement of actions implemented to be an effective method of noting any improvements in health and safety performance. Whilst one company employed the services of an external consultant to ensure all actions had been taken, another company

measured any site audits that had been carried out. The contracts manager then ensured that any problems identified through the audits were resolved.

Although useful, due to cost implications, one company stated that measurement of health and safety in this way was not feasible. Measurements of this kind would only be done if required by law. Another company reported that whilst no formal measurement takes place, an informal tacit knowledge of these was reported to be sufficient.

Attitudes

Three companies measured staff attitudes. One company reported they have seen a ‘culture shift’ with the younger employees showing an increased willingness to comply with PPE requirements. Another company reportedly gauges attitudes through the use of monthly contractor meetings. The meetings include discussions on health and safety, enabling them to get a ‘feel’ for individuals’ interest in health and safety. From the meetings they explained that they are able to make judgements on the sites that they think they need to focus on i.e. those with negative attitudes towards health and safety.

Although not measured formally, one company stated that they ask site agents to make informal judgements on staff attitudes and take appropriate measures. They argued that it is very visible if someone is not compliant.

Two companies stated that staff attitudes are not measured due to difficulty and cost. They also believed that staff attitudes are not measured by most SMEs and that there is debate surrounding their value. One company noted that a prerequisite of being a SME is the ability to know your staff well. Consequently, they believed that companies are unlikely to spend extra money assessing them via a survey.

Worker Engagement

Whilst the majority of companies interviewed commented on the measurement of worker engagement, only two reportedly used it to measure health and safety performance. One company stated that management are required to ask the workforce to comment on risk assessments and method statements. Further to this, if a new operation is required on a particular site, the workforce is engaged to generate ideas for input to risk assessments and method statements to accommodate the new operation. They explained that they also ask staff to sign attendance sheets to confirm their attendance at toolbox talks.

A second company explained that they deliver a pre-order meeting on safety with their subcontractors involving a safety briefing and explanation of company procedures. They also explained that they obtain feedback from site managers, contract managers, and operatives on site safety issues, and publish a newsletter including details on safety issues.

A further four companies commented on the use of worker engagement techniques to measure health and safety performance, with some indicating that it is not a typical measure used by construction SMEs. Generally, companies employed informal methods by receiving feedback from staff on toolbox talks, communication days and discussions of safety issues and potential dangers. Other methods of obtaining feedback included the use of health and safety committee meetings, training, newsletters and site visits by the Managing Director to encourage the open discussion of issues. One company developed a site safety booklet featuring the staff to encourage engagement. Some companies made use of their induction process to make it clear to staff who they should raise any issues with. One company also ensured that all concerns are recorded in the site agent’s diary. Another company carried out feedback sessions with staff, explaining the latest company statistics and consulting with them. However, they pointed out

that this is not the norm for most SMEs, believing that most worker consultation is arranged on an ad hoc basis, is informal and not reported. Contrary to this, one company felt that SMEs are in a unique position with regard to worker engagement as the site owner is often working alongside his staff, making engagement immediate and direct.

Other performance indicators

Four companies pointed out other health and safety performance indicators adopted. Two companies discussed the use of **benchmarking** their data. One of the companies interviewed benchmarks against HSE visits and BSG safety consultants, to confirm that their sites are set up appropriately.

One company stated that they **measure the amount of training** delivered, and reported that all staff receive sufficient training for the work they are required to undertake. However, the interviewee reported that training and its measurement was primarily undertaken due to legal requirements.

One company stated that they employ the services of an **external safety advisor** to visit the site and generate reports. Another company reported the use of **financial performance**, e.g. wastage of materials, as this often correlates with safety performance.

A **client satisfaction survey** was used by one company to provide feedback to management on a number of key measures, including time, cost, attitudes, and safety.

Barriers to measurement

One company pointed out the barriers to effective measurement of the more proactive approaches to health and safety. These centred on **time** available, **resources**, and **cost**.

3.4 METHODS OF ASSESSMENT OF BUSINESS PERFORMANCE

Profit

Financial performance was reported as a useful indicator of business performance by six of the companies interviewed.

Repeat business

Four companies highlighted that the amount of repeat business that they receive is a good indication that they are performing well. They explained that both compliments and complaints received from existing clients as well as positive working relationships enables them to determine their level of business performance.

Reputation

It was noted by four of the companies that reputation indicates their level of business performance, such as word of mouth regarding the quality of work produced.

New clients / contracts

Regarding the ability to secure new clients and contracts, one company noted an issue whereby SMEs will typically only look to improve health and safety on site if it is negatively impacting on their ability to secure a new contract. Another company explained that due to their

improvements in health and safety practices, they can now compete with larger organisations and have consequently increased their client base.

Winning of health and safety awards

Three companies explained that the winning of various health and safety awards was a good indication of their business performance. Awards such as those given by the Principal Contractor and Royal Society for the Prevention of Accidents (RoSPA) were noted in particular.

Audits / reports

Two companies reported the use of audits and reports in determining their business performance.

Other indicators

Other indications of business performance noted by some of the companies included using feel judgements, the amount of turnover, a decrease in the number of incidences occurring on site and the number of issues reported back from the contractors.

3.5 COMMON RISK TAKING BEHAVIOURS FOUND ON SME CONSTRUCTION SITES

Working at heights

Working at heights was noted to be one of the most common risk taking behaviours found on SME sites. Six of the companies interviewed suggested that it was most prevalent amongst those in the finishing trades, including roofers, electrical and mechanical traders, plasterers and joiners. This behaviour is also common amongst steel erectors. One company noted that staff attitudes towards work at heights is the hardest to control, with staff choosing to climb up scaffolding rather than fetch and secure a ladder. Managing this problem was considered difficult.

Slips, trips and falls

Poor housekeeping and cleanliness were mentioned by six companies as being common risk taking behaviours, leading primarily to slips, trips and falls. This appeared to be a risk typical to those trades likely to leave equipment and objects in and around their workspace, and staff who were generally untidy, such as builders, plumbers and carpenters, and those likely to be involved in short duration contracts. Companies suggested that it could occur when staff leave equipment in the wrong place, which increases the risk of potential slip and trip accidents.

Housekeeping was cited as a problem on smaller sites without designated material areas and waste areas. It was pointed out that this is not usually a problem with larger sites where space is less of an issue.

Failure to use safety equipment / PPE / adhere to procedures

Despite having PPE and safety procedures in place, six of the companies interviewed stated that one of the biggest risk taking behaviours displayed by staff is a failure to adhere to those procedures and wear and use appropriate safety equipment and PPE. Many felt that this risk was common to all trades including ground workers and electricians.

Four companies pointed out that staff often fail to wear the appropriate PPE. One company commented that whilst staff regularly wear safety boots and high visibility jackets, **laziness** and a **lack of time** lead to a failure in wearing equipment such as safety goggles, dust masks, hard hats and gloves. Another company pointed out that in domestic works, staff wear trainers instead of safety boots. Often staff will don the necessary PPE when asked by the supervisor but the interviewees stated that they were sceptical as to whether this remains on when the supervisor has left the site. One company suggested that the failure to wear hard hats stems from the belief that it is **easier to do the job without it**, whilst another company felt it occurs because staff become **complacent**. Some staff have been noted only to wear some of the recommended PPE.

Related to the issue of PPE was the main contractor and their clients having meetings on site without wearing the correct PPE. One company pointed out that the main contractor allows the client to walk onto the site without the necessary PPE when they should be leading by example.

A further issue that was highlighted by one company concerned a general lack of adherence by staff to health and safety procedures and a failure to comply with COSHH Regulations. They suggested that this was due to poor staff attitude.

A failure to follow the necessary procedures can result in excavations being left open and unprotected, resulting in an increase in the likelihood of an accident, and also poor onsite traffic management. This is something that is common to site / delivery drivers.

One company pointed to a lack of necessary equipment leading to staff being unable to follow health and safety procedures. They gave the example of plumbers not having extinguishers.

Poor training was felt by one company to be responsible for staff not following procedures. They gave the example of plant operatives driving smaller machines (e.g. a dumper or roller) without the appropriate training. Often the individuals taking such risks are very experienced construction workers, who may feel that they have sufficient experience despite not having the appropriate paperwork in place.

Failure to ensure equipment safety

Three companies commented on the poor erection of mobile towers and scaffolding, with some suggesting that this is an industry wide problem. Staff erect towers in the quickest and easiest possible way, taking short cuts where possible. One of the companies pointed out that as there are so many types of mobile towers it is impossible for training to cover them all. This was also something that was felt to be common to all trades.

Failure by staff to put the safety pins in buckets to ensure the bucket is safely attached before use was noted as a problem in one company. This was felt to be common in machine operators. Failure to regularly test portable electrical equipment was believed to be common to all self-employed personnel. Scaffolders and steel erectors often wear safety harnesses but fail to secure them adequately. Demolition and ground workers were also noted to be at risk of Hand Arm Vibration.

A lack of edge protection on trenches was a risk that people take on small construction sites, particularly ground workers. One company felt that the issues surrounding digging trenches need to be addressed, including trench collapse, working close to machines, and the use of quick-hitches for machine attachments.

Rushing

Two companies reported rushing as a common risk taking behaviour amongst construction SME staff. One company gave an example of staff (particularly ground workers) failing to wear seatbelts whilst using company machines and leaving keys in company vehicles. The concern behind these risks was that staff want to finish jobs quickly and consequently fail to take the necessary health and safety precautions.

Time pressure is commonplace in the construction industry according to one company. Operatives take short cuts to finish jobs, such as before they go home, or to avoid having to return to that job the following morning just for half an hour. Interviewees reported that subcontractors on piecework compound this issue.

Misuse of equipment

One company talked about the modification and misuse of scaffolding and ladders as being common risk taking behaviours amongst bricklayers, roofers and carpenters.

Manual handling violations

One company talked about lifting large bundles of mesh close to others as a common risk taking behaviour amongst ground workers.

Other risk taking behaviours

One company reported that alcohol and drugs were significant risk factors in the construction industry. Falling objects were also highlighted as a general risk for construction SMEs, common to all trades. For those in the demolition trade, building collapse was noted as a significant risk.

Insufficient concentration when working close to large machinery was found to be a risk common to ground workers.

The poor boarding of lift shafts was found to be a risk to contractors and the smaller trades. One company stated that it is very rare to find good quality toe boards with good access.

One company noted that often pedestrian areas are not clearly marked and whilst it is not such an issue now, it is still felt to be something that needs consideration. Again, this was something common to all trades.

3.6 OTHER RELEVANT INFORMATION

One company felt that a barrier that they often have to overcome concerns removing the poor health and safety practices learnt by apprentices during their time spent in college. What is needed, they believe, is for schools and colleges to show increased support for the importance of health and safety practices.

4 SMES RECOMMENDATIONS FOR DEVELOPMENT OF THE TOOLKIT

The following are recommendations put forward by the companies interviewed.

4.1 Recommendations for toolkit structure and layout

- ❑ Include diagrams and pictures to aid understanding. Due to the lower literacy skills of some site supervisors, it is also important to keep the language used simple and straightforward.
- ❑ Keep the toolkit simple and concise, omitting anything that is not highly relevant. This will encourage uptake.
- ❑ A novel idea was put forward to make the toolkit a physical entity, e.g. a toolbox or a first aid kit in an effort to keep it at the forefront of people's minds. This may work to remind people to take the toolkit with them and use it in their day-to-day work. There also exists a need for a physical location to store health and safety information on the smaller sites.

4.2 Recommendations for toolkit content

- ❑ The inclusion of a staff attitude measure in the toolkit coupled with appropriate support material and guidance on administration and interpretation. Some companies stated that although they are able to assess staff attitudes they need recommendations on how to make improvements.
- ❑ The recommendations for buy in were paramount. The inclusion of a strong business case is vital. To encourage worker and organisational uptake and buy in, one company suggested obtaining support from the National Federation of Demolition Contractors (NFDC). Insurance companies assured one company that premiums reflect efforts on health and safety, which they stated could be a useful angle for developing management buy-in.
- ❑ Applicability of the toolkit to a wide variety of contexts and scenarios was recommended as well as the provision of benchmark data. This would help to turn the intangible into the tangible – something that managers want to see.
- ❑ Training and toolbox talks were reported as significant elements that should feature in the proposed toolkit. They are considered to be a useful strategy for driving up health and safety performance.
- ❑ The health and safety pack for small sites needs a clear definition of the main risks for that site. There should be a general section for the main safety issues, followed by subsections for specific issues, e.g. plant. The packs should be tailored for specific sites, and evolve as the work evolves.
- ❑ There is a need for more clear and concise guidance from HSE on risk assessments and method statements, in order to empower the site worker, increasing their competence to think more about the health and safety of themselves and others. Example risk assessments and method statements should be condensed into one page.
- ❑ The toolkit needs to emphasise the importance of training and refresher training on risk assessments and method statements. Workers often fail to carry out formal risk assessments but due to experience are able to deal with on site issues.

- One company noted that the client supervisor/principal contractor supervisor is very significant in setting the tone of site health and safety. A good site manager understands what each trade needs to do, understands the sequence of works, and is a pleasure to work for. A poor site manager tolerates sites that are not set up properly, which can impact on performance on site. They can often feel that they are 'constantly chasing their tail' sometimes because they lack the necessary skills and resources. It is recommended therefore that supervisors are given the necessary skills in order to implement the toolkit effectively.

- The site manager training may not cover all the skills required for the role anticipated, considering its significance. It is recommended that principal contractors be given the opportunity to revisit the content of their site manager training. A key factor here is depth of knowledge of the trades that they are managing. It should be focused on building (construction), and not solely on paperwork. Knowledge was felt to be important here, which did not necessarily require hands on experience.

5 CONCLUSIONS AND RECOMMENDATIONS

This section of the report outlines some of the key findings that may have implications for the development of a toolkit.

5.1 CHARACTERISTICS ASSOCIATED WITH SME CONSTRUCTION SITES

Due to the lack of space available on smaller sites, the results suggested that often essential equipment is difficult to bring onto the site and vehicles can be difficult to manoeuvre safely. This means that the toolkit will have to include information on working in space-restricted sites amongst the risks described. This may have implications for the development of a toolkit as staff may lack the necessary PPE and other safety equipment with which to work safely and may find implementing health and safety initiatives more difficult than larger companies. It is important that sites are encouraged to store all necessary equipment on site, making it available to all staff. If the organisation cannot provide the necessary equipment, obtaining staff buy in and commitment can be difficult. It was felt that a strong business case is needed to ensure SMEs provide the essential equipment that staff need to behave and work safely. It is important that companies are made aware of the importance to provide access to the toolkit on site.

Poor housekeeping was noted as a characteristic of SMEs. It is important therefore that the toolkit includes appropriate worker engagement strategies to encourage people to adopt safe working practices.

The companies interviewed pointed out that there is often a lack of IT facilities available on site. Consequently any toolkit developed would need to take this into account. If online facilities are provided as part of the toolkit, careful consideration would need to be put into how site supervisors and health and safety officers would access this information. **It might be that the toolkit would need to be available in a variety of different formats to enable access and uptake.**

Due to the poor welfare facilities that were reported as being available on sites, **it may be necessary for a toolkit to include information surrounding the importance of their provision for company directors.** As different subcontractors may place different values on the importance of health and safety, a toolkit may look to take account of this by providing guidance and support on engaging with subcontractors to enable a consistent health and safety approach to all staff.

The results confirmed that the continual turnover of staff and high use of subcontractors make for a transient workforce within construction SMEs. This can make it difficult to instil health and safety practices and obtain buy in from staff. **It is therefore essential that a toolkit take into account how companies go about engaging all levels of their workforce and portraying their health and safety values and attitudes.** The toolkit needs to be aware that there will be a continual stream of new staff joining the company as well as different subcontractors entering the workforce, all of whom may have different health and safety values. It may be that their standards of health and safety are poor in comparison. Some form of assessing their attitudes towards health and safety may be required and the importance of checking their qualifications should be encouraged within the toolkit.

Due to a lack of resources (including a health and safety budget, staff time to carry out health and safety procedures, staff time to attend training and a lack of necessary equipment) a toolkit would need to **include a strong relevant business case to encourage uptake and ensure commitment.** Worker engagement strategies would also work to encourage staff not to take short cuts. The toolkit might look to include strategies to manage this effectively.

It was noted that the role of the site foreman is very varied and busy. In order for them to feel able to implement aspects of the toolkit, it is essential that they are able to integrate it into all aspects of the work that they currently do. **It is also important that the toolkit is intuitive and simple to implement.** The results indicated that the site foreman needs the support of senior management to combat poor staff safety attitudes. This is further evidence of the need for a strong business case.

Changing staff attitudes and the prevalence of the macho culture is something that the toolkit should also consider. The toolkit should be aware of staff who work remotely and how BCWE practices will be adopted by those who are further removed from their company's health and safety systems and procedures.

A lack of client knowledge on the importance of health and safety was noted in the findings. This provided more evidence of the need to include a strong business case within the toolkit. The business case should also look to incorporate information for company directors on persuading clients.

Due to the poor literacy skills and employment of some foreign workers, it is essential that the toolkit be developed at an appropriate reading age, where relevant. Any language used must be simple and straightforward. However, the guidance provided in the toolkit is to be targeted at duty holders or managers. By implication, their literacy skills should be of a higher standard, posing less of a barrier to its effective implementation.

5.2 HEALTH AND SAFETY PERFORMANCE INDICATORS

The results of the interviews indicated a strong bias amongst construction SMEs to monitoring and recording reactive indicators. **A strong case is therefore needed in the toolkit to promote the importance of the use of proactive performance indicators.** It is important that SME owners have a better understanding of why they get the reactive results that they do and to enable them to take more remedial actions when accidents occur. Information should be provided in the toolkit detailing a preventative approach that can be taken.

See/hear/feel judgements appeared to be one of the most prevalent indicators used to determine health and safety performance. The results indicated that when managers are out on site they can quickly determine the level of safety standards. It is important therefore that senior managers have positive health and safety attitudes and values and have a clear understanding of the company's health and safety procedures and initiatives. The inclusion in the toolkit of the business, legal and moral case is paramount.

Due to the time constraints of staff and site supervisors it might be that methods of recording health and safety performance are simple, intuitive and quick. This may also work to encourage the uptake of the measurement of proactive indicators.

Few companies measured occupational health indicators formally. However, most companies felt that it was important but budget restrictions and staff reluctance meant that heavy emphasis was placed on meeting safety requirements. Any toolkit developed should be aware of this and might look to **provide instruction on measuring occupational health and guidance on incorporating this into measurements of safety performance.**

The results suggested that near misses are rarely reported due to a lack of understanding on what constitutes a near miss. It might be that a toolkit could provide information and guidance on this as well as a persuasive case on the benefits of reporting them. It should also be borne in mind that site supervisors and front line staff are reluctant to report them for fear of reprisals. This has

implications for the necessity of communication and worker engagement prior to the start of any BCWE initiative.

Most companies interviewed noted the importance of worker engagement and some had implemented initiatives in order to engage their staff and obtain feedback. The companies interviewed, however, did not detail any formal methods of obtaining feedback in order to provide them with an indication of their health and safety performance. As one company pointed out, it might be beneficial to use the existing and unique structure of SMEs to enhance worker engagement – the site owner often works alongside his staff, which makes engagement immediate and direct. Any toolkit developed should be aware of this unique set up.

The barriers to measurement noted in the Results section should be taken into account in the development of any toolkit. These include the time available of staff and management to carry out their work and implement initiatives, the resources available and cost allocated. The toolkit may therefore need to be made as prescriptive as possible to reduce the time burden on construction companies in developing supporting materials.

5.3 METHODS OF ASSESSMENT OF BUSINESS PERFORMANCE

The results indicated that across the companies interviewed there are a variety of methods of assessment employed in construction SMEs. The **importance of adopting a variety of assessment methods to determine business performance** needs to be communicated within the toolkit. Guidance should also be provided on identifying trends and support on how to link these trends to BCWE initiatives.

5.4 COMMON RISK TAKING BEHAVIOURS FOUND ON CONSTRUCTION SME SITES

Common risk taking behaviours that the toolkit might want to take into account include working at heights, slips and trips, failures by staff correctly in using equipment, PPE and adhering to procedures, as well as staff failing to ensure equipment safety.

Many of the companies noted problems of staff leaving equipment and objects lying around, culminating in a high number of slip and trip hazards. The importance of staff taking responsibility for their own and others' health and safety is something that should be incorporated within the toolkit. This is further evidenced by the number of companies who stated that staff fail to wear PPE and adhere to procedures due to laziness, complacency and a lack of time. It is essential that the toolkit provide information on strategies and tools that managers and supervisors can adopt to encourage workers' buy in to any BCWE program.

The results highlighted that some of the common risk taking behaviours were a result of people rushing to complete their work. Whilst one company suggested that this was because staff want to return home quicker or because they carry out piecemeal work, more research may be required here to identify exactly why staff feel pressured into rushing their work. Other factors involved may be due to the client, the site owner, supervisor, or indeed the weather.

These more common examples of risk taking behaviour can be used to:

- Raise awareness of common risks on construction sites.
- Illustrate how to apply behaviour modification techniques to common risk taking behaviours with a view to eliminating them and substituting safer alternatives.

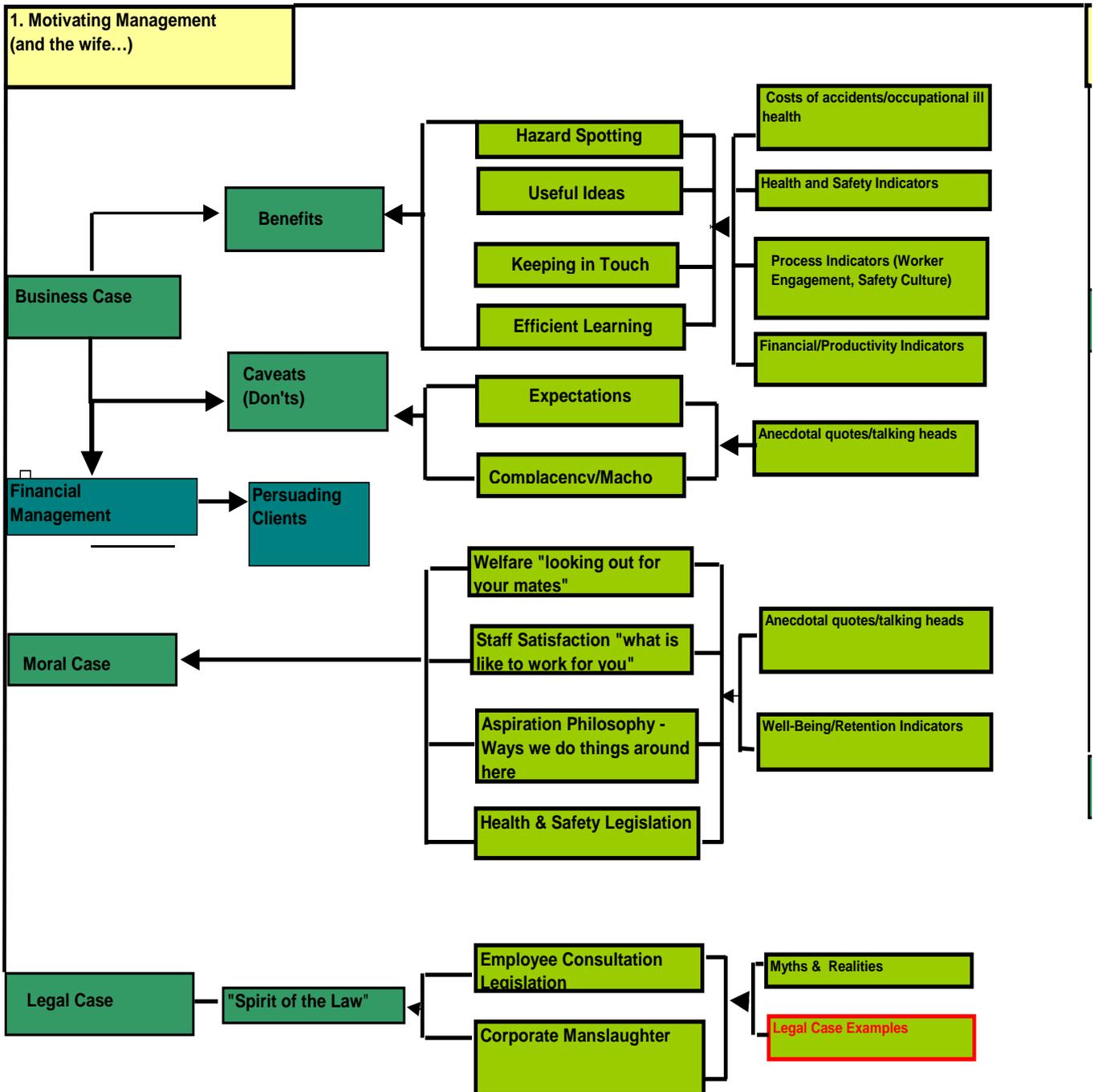
Small site characteristics that the toolkit needs to accommodate

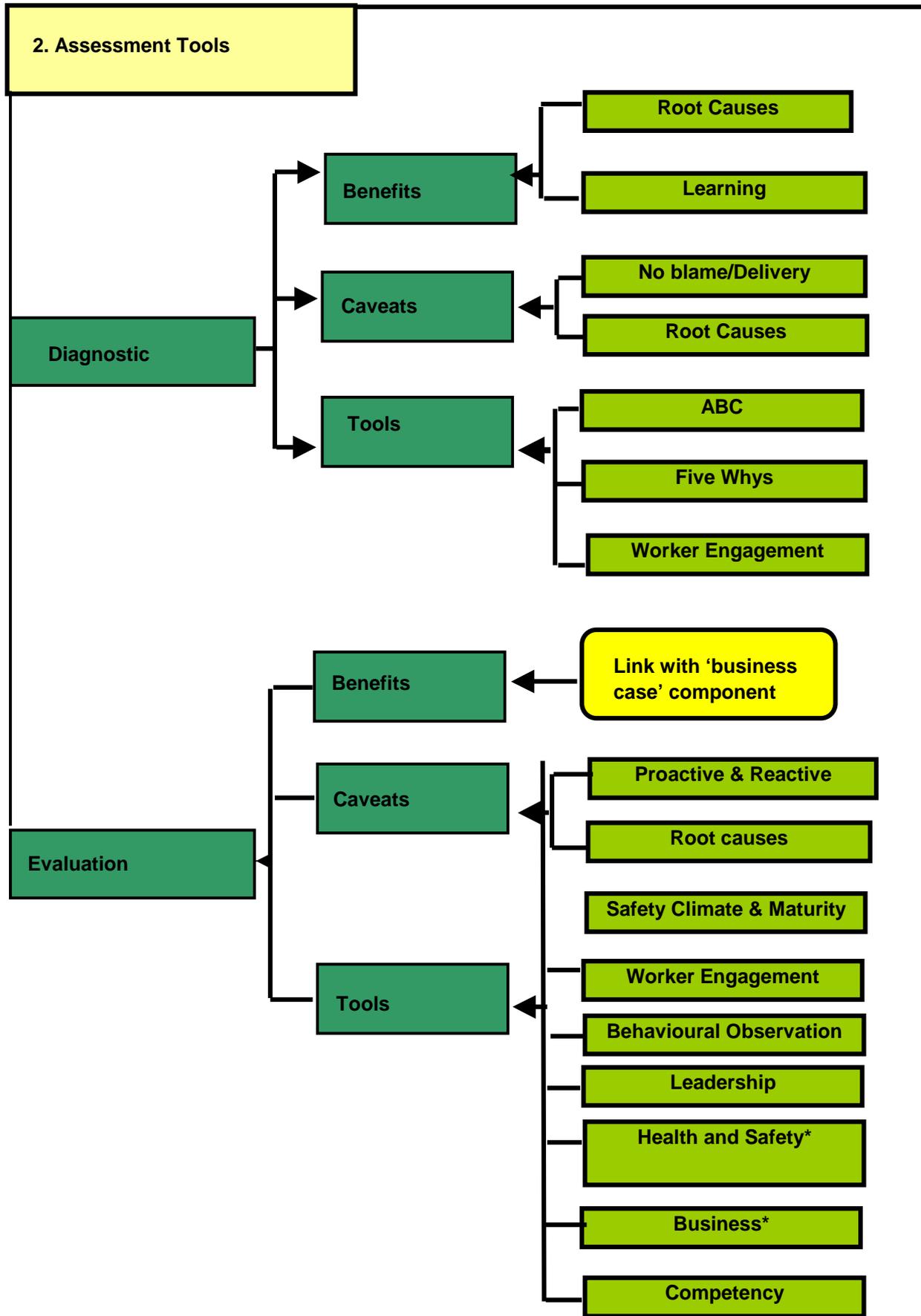
- ❑ Lack of space available on smaller sites.
- ❑ Lack of IT facilities available on site.
- ❑ Poor welfare facilities provided on sites.
- ❑ Continual turnover of staff and high use of subcontractors make for a transient workforce.
- ❑ Lack of resources - including a health and safety budget, staff time to carry out health and safety procedures, staff time to attend training and a lack of necessary equipment.
- ❑ Busy and varied role of the site foreman.
- ❑ Presence of a macho culture.
- ❑ Lack of client knowledge on the importance of health and safety.
- ❑ Strong bias amongst construction SMEs to monitoring and recording reactive indicators.
- ❑ See/hear/feel judgements appeared to be one of the most prevalent indicators used to determine health and safety performance.

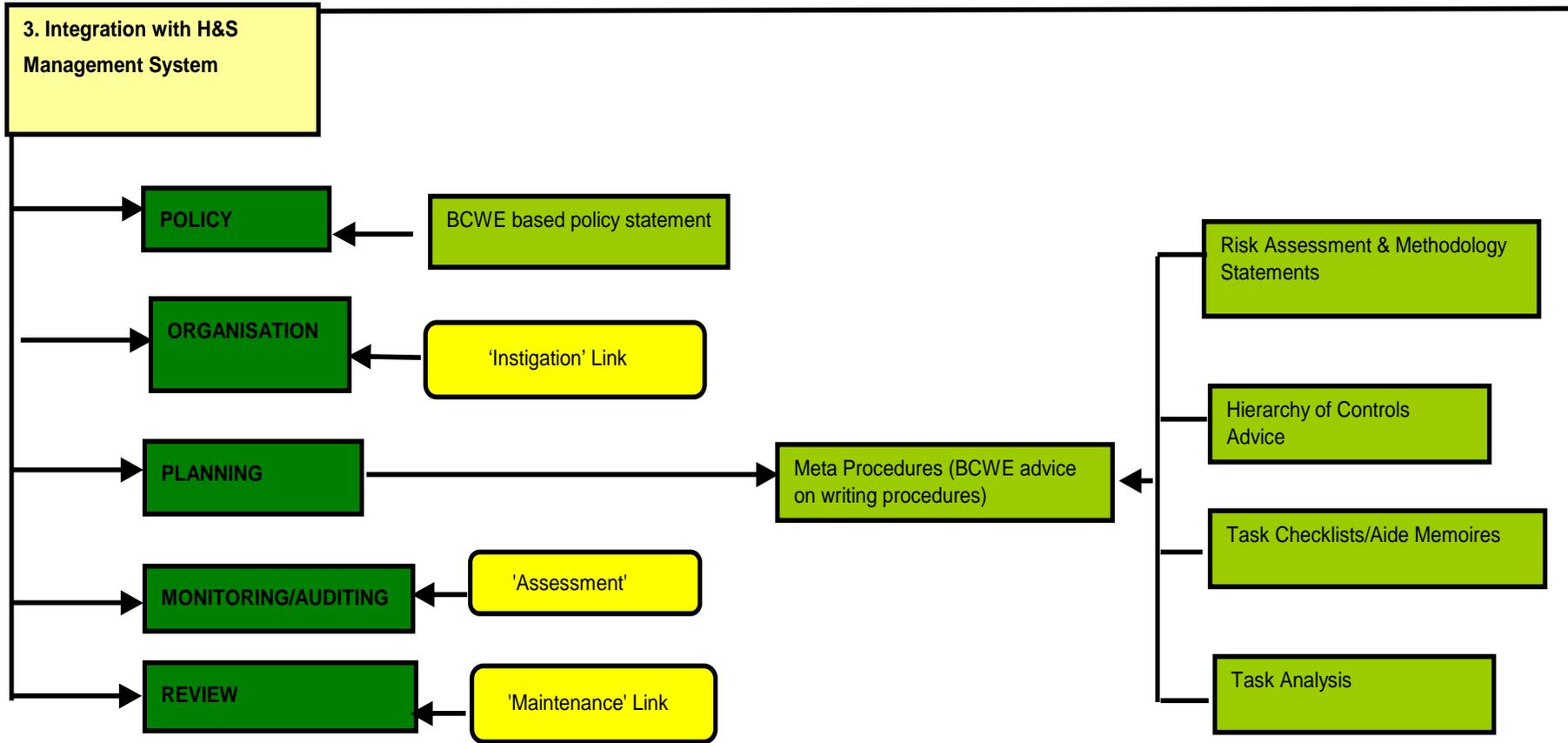
Implications for the toolkit

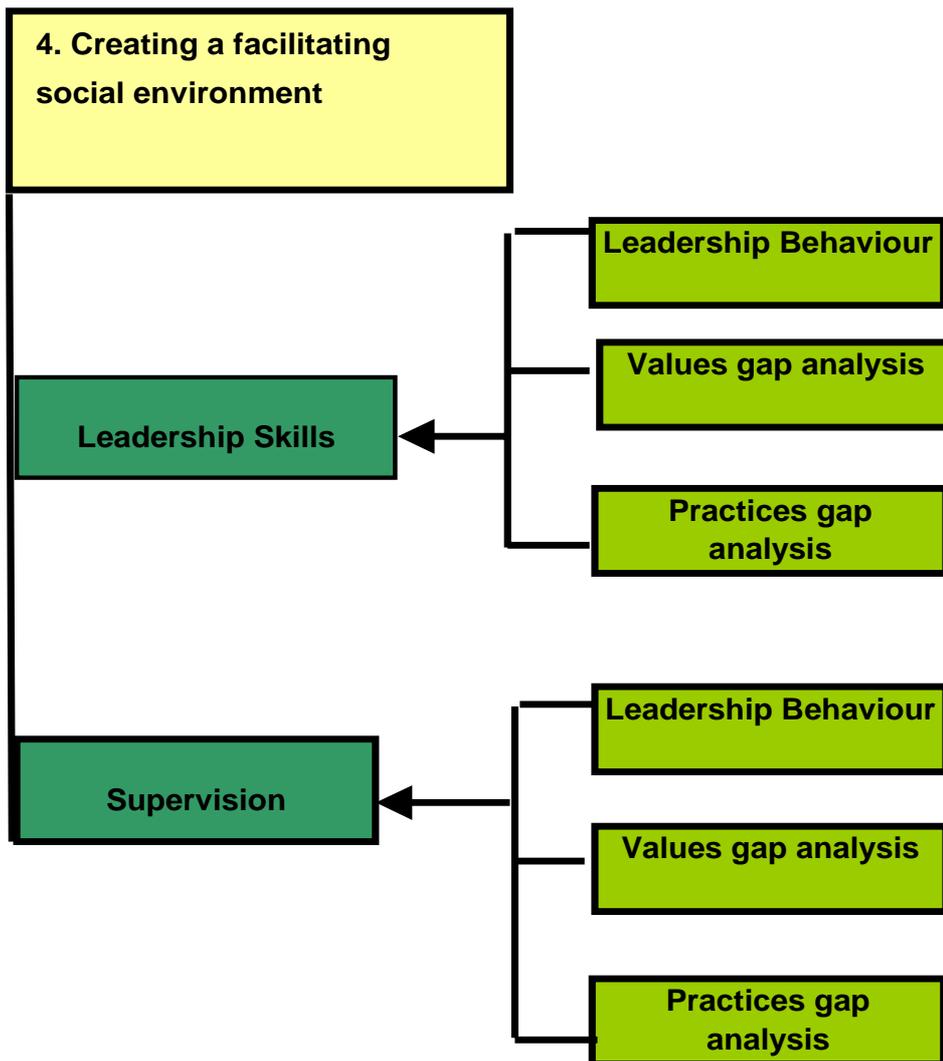
- ❑ A strong relevant business case is needed to ensure SMEs provide the essential equipment that workers need to behave and work safely and to encourage uptake and ensure commitment.
- ❑ Importance of providing access to the toolkit on site.
- ❑ The toolkit would need to be available in a variety of different formats to enable access and uptake.
- ❑ Include information for company directors surrounding the importance of the provision of welfare facilities.
- ❑ Toolkit should take into account how companies go about engaging all levels of their workforce and portraying their health and safety values and attitudes.
- ❑ The toolkit needs to be intuitive and simple to implement.
- ❑ A strong case is needed to promote the importance of the use of proactive performance indicators.
- ❑ Methods of recording health and safety performance need to be simple and intuitive.
- ❑ Provide instruction on measuring occupational health and guidance on incorporating this into measurements of safety performance.
- ❑ Highlight the importance of adopting a variety of assessment methods to determine business performance.

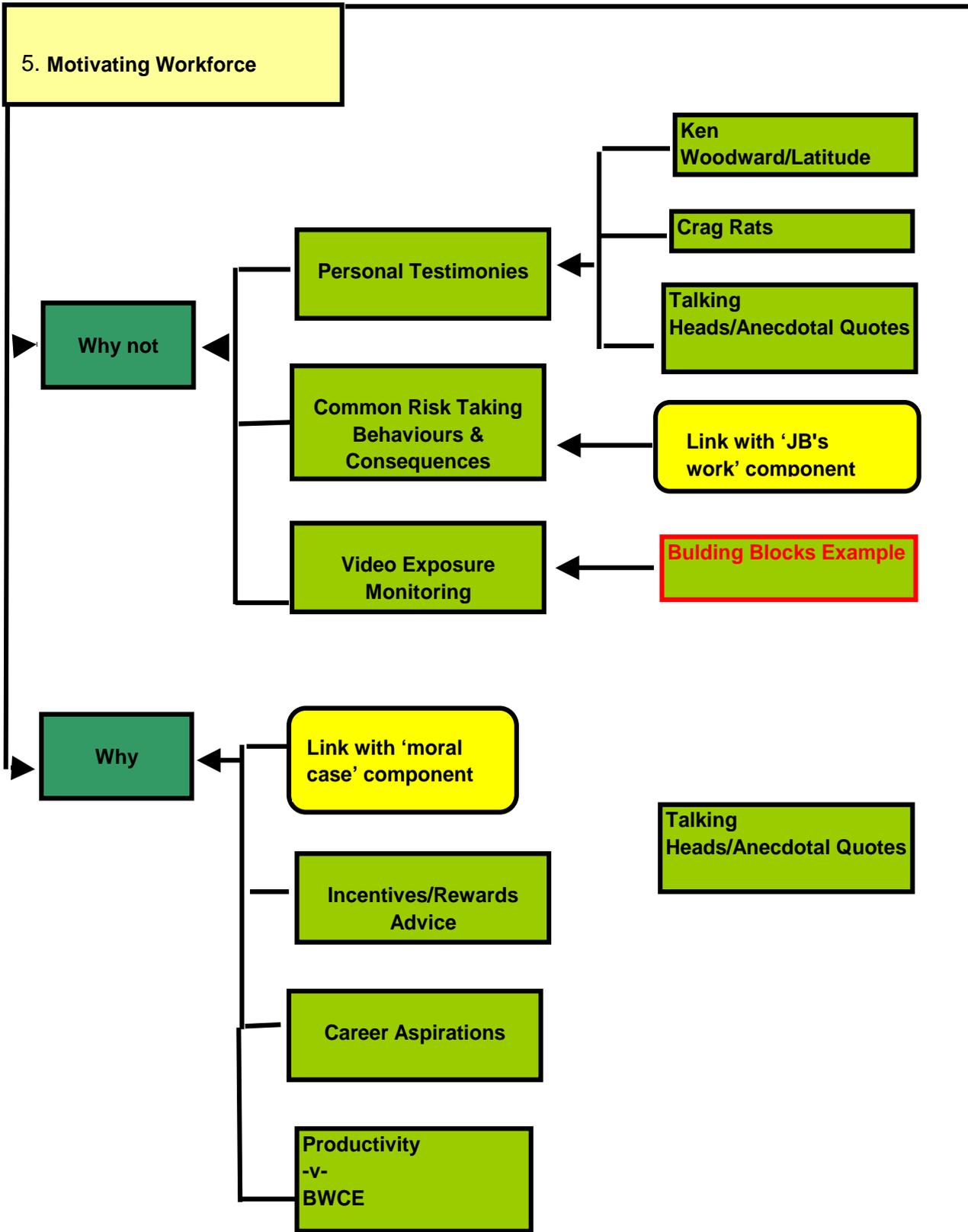
5.5 APPENDIX 5: FRAMEWORK FOR THE TOOLKIT

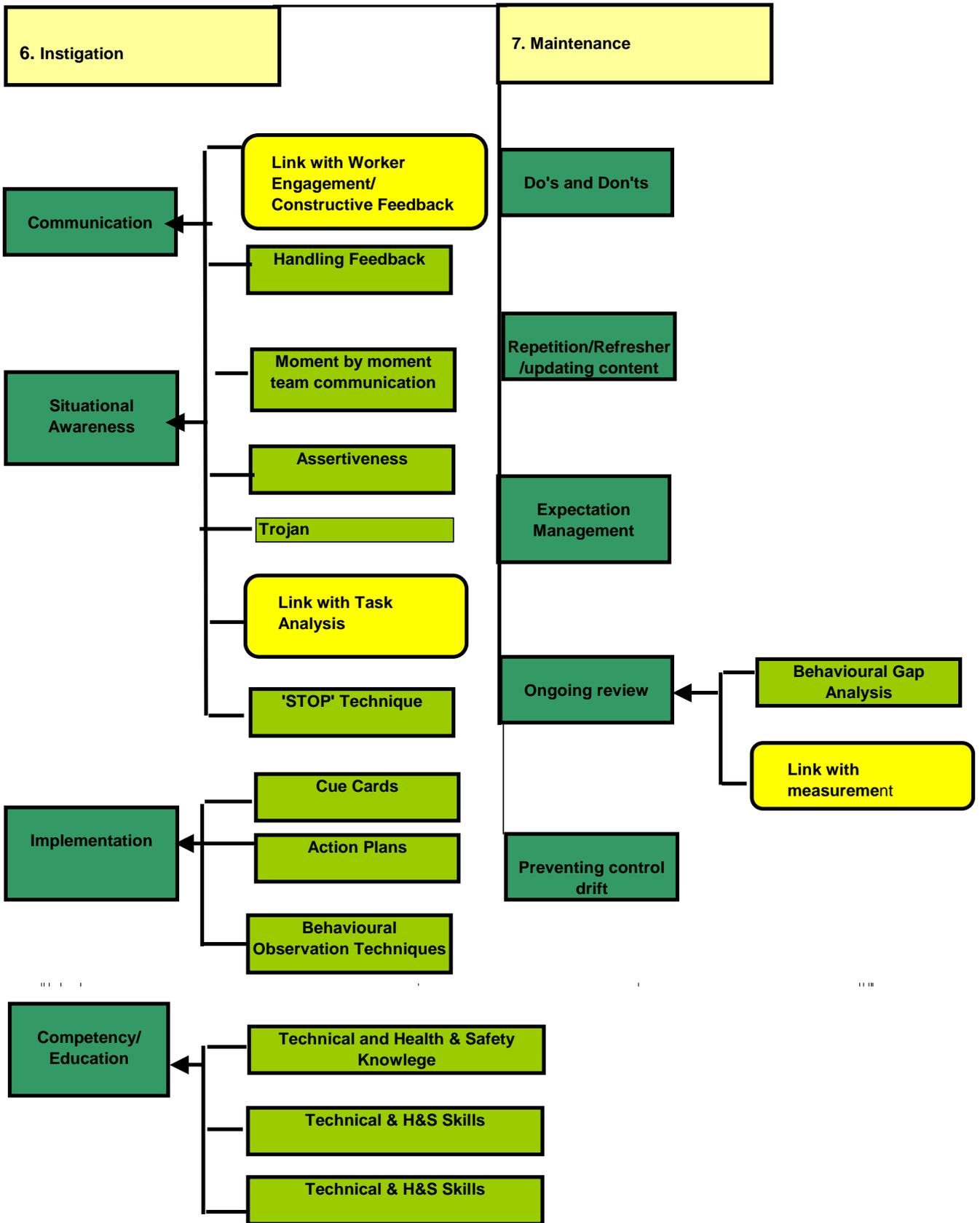












5.6 APPENDIX 6: REPORT PROFILING THE DEVELOPMENT OF THE HSCMM

(See Overleaf).

EXECUTIVE SUMMARY

Objectives

This piece of work follows on from an earlier phase (phase I) of a project concerned with establishing current practices within the UK construction sector in developing and applying behaviour change and worker engagement (BCWE) practices intended to improve health and safety performance. It was found that to improve health and safety practices across the construction industry small and medium sized enterprises (SMEs) need support in implementing BCWE initiatives. Phase II of the research was therefore commissioned by HSE to develop a toolkit for SMEs that would assist them in improving their health and safety performance. To do this effectively, they first need to identify their level of safety culture maturity. As such, one of the objectives of Phase II was inclusion of a short 'rule of thumb' safety culture/climate maturity measure (HSCMM) for use by SMEs to support needs assessment.

Main Findings

The rule of thumb HSCMM was developed through a process of discussion and consultation with an HSL project team, internal expert panel and members of the BCWE Forum set up between HSE and the construction sector. It was decided that a combination of Fleming's safety culture maturity model and Westrum's typology of organisational communication model would be used to develop the measure. Elements within the model consisted of those that were common to all the models identified through the literature. It was essential that the elements captured the key aspects of behaviour change, namely worker engagement and organisational learning. Statements were generated by element, with one statement for each level of safety culture maturity. Solutions to enable an organisation to progress through each level were also generated. Emphasis was placed on developing a measure that was straightforward to use, with intuitive appeal.

About this Report

This report details the current literature available on the topic and outlines the development of the HSCMM. All decisions made by the project team and project steering group through the development process are discussed and documented in this report. The HSCMM will form part of the toolkit developed in Phase II for SMEs, currently known as the People First Toolkit. The actual measure is not included in this report. It will be published together with the People First Toolkit following a more robust evaluation process in the next phase of the research (Phase III) than undertaken to date.

1 INTRODUCTION

This piece of work draws on Phase I of a Behaviour change and Worker Engagement (BCWE) project, which focused on the construction industry. Phase I was concerned with establishing current practices within major contractors from the UK construction sector in developing and applying BCWE practices intended to improve health and safety performance. Phase I established that in order to improve consistency in health and safety practices across the industry, there was a need to enable small and medium sized enterprises (SMEs) to implement BCWE initiatives. Consequently, Phase II focuses heavily on providing construction SMEs with the tools (a toolkit) necessary to do this.

Prior to the implementation of BCWE interventions, SMEs will be encouraged to first assess their level of safety culture maturity through the use of a toolkit. This report details current literature available on the topic, identifying any models that define the levels of safety culture maturity and their application through the use of tools based on the identified levels.

The report also details the development of an HSL Safety culture maturity rule of thumb measure that can be used by SME construction companies in order that they can assess their level of safety culture maturity and put interventions into place to increase their maturity level. The HSCMM will form part of the toolkit developed in Phase II for SMEs, currently known as the People First Toolkit. The actual measure is not included in this report. It will be published together with the People First Toolkit following a more robust evaluation process in the next phase of the research (Phase III) than undertaken to date.

2 METHODOLOGY

2.1 LITERATURE SEARCH

An initial meeting with the HSL project team identified a need to carry out a search for all available literature on safety culture maturity.

The search team at Bootle were asked to identify articles relating to two key phrases, namely 'safety climate maturity' and 'safety culture maturity'. More specifically, they were asked to identify articles relating to the levels or stages of safety culture maturity, in particular those relating to the construction industry. Three hundred and ninety-five abstracts were returned from the following databases:

- Ergonomic Abstracts online – 70 abstracts
- OSH update – 21 abstracts
- OSHROM – 227 abstracts
- Web of science – 77 abstracts

These abstracts were searched by the HSL team according to the following criteria:

- Date of publishing (with the aim of identifying the most recent work, i.e. within the last ten years).
- Inclusion of the term 'maturity'.
- Identification of reviews of safety culture in the last three years.

The HSL team also analysed the Phase I literature to identify any relevant articles and reviewed the HSE and HSL report databases for documents on 'safety culture maturity' and 'safety climate maturity'. Finally, the HSL team searched the Science Direct online database for articles containing the key terms 'safety climate maturity' and 'safety culture maturity'.

Twenty-seven documents were reviewed in total. Of those, ten were deemed the most relevant and are included in this review.

2.2 DATA EXTRACTION

A spreadsheet was created to extract the relevant data from the literature identified. The data was extracted according to the following criteria:

- Journal / article title
- Background description of the article, capturing the essence of what was done, why, how, the results found and main conclusions drawn.
- Tool name

- ❑ Underlying model used to develop the tool
- ❑ Tool description (including information such as item length)
- ❑ Evidence of how the authors had validated the tool
- ❑ Evidence of its usability
- ❑ The context or industry in which it had been applied

The results of the literature review are highlighted in section 3.1.

2.3 DECISION MAKING

The HSL project team met to discuss the following safety culture maturity models and reach a consensus as to which model to use.

- ❑ Safety Culture Maturity Model – Fleming 2001
- ❑ Westrum’s typology of organisational communication – Lawrie et al, 2006
- ❑ Stages of change model – Prochaska and DiClemente, 1982 in Whysall, 2005.
- ❑ River Diagram Survey - Gordon, Kirwan and Perrin 2007
- ❑ POPMAR model - HSE, HSG65 2003

Each model was discussed in turn, identifying its suitability to fully explain the stages of safety culture maturity. The key criteria were the models’ ability to focus on worker engagement and organisational learning. It was essential that the model to be adopted was intuitive and it was preferential that the model had been applied within construction or related industries. Decisions were made regarding appropriate language and content for the target audience. The results of this discussion are presented in Section 3.2.

Further discussion between the HSL project team centred on the elements to be included and assessed in relation to the model. To aid discussion, all elements were collected from the following models and toolkits:

- ❑ Fleming’s Safety Culture Maturity model
- ❑ Changing Minds toolkit
- ❑ Westrum’s typology of organisational communication
- ❑ HSG65
- ❑ HSL Safety Climate Tool, (SCT) version 1.0.

All elements were examined and discussed in turn in an effort to identify those that were common to all models. Any decisions made regarding the elements to be included were based on whether they were user-friendly and captured worker engagement and organisational learning. This was to ensure that the end product (i.e. the rule of thumb measure) was consistent with the principles of both behaviour change and worker engagement.

Once the elements had been decided, statements were generated to define each element for each stage of safety culture maturity. From these discussions an initial rule of thumb measure was developed.

Once these decisions had been made a meeting was held between the HSL project team and an internal expert panel to discuss the draft version of the rule of thumb measure. The internal expert panel included Jonathan Bohm (Specialist Inspector in Human Factors and Ergonomics) and Dr. Caroline Sugden (Human and Organisational Factors Scientist specialising in safety culture). Discussions centred on the decisions that had been made to determine the model adopted, the elements included and the statements generated. Following consultation changes were made to the rule of thumb measure.

Following internal discussion, the HSL project team met with the BCWE Forum to discuss the rule of thumb measure. A test-retest reliability test was conducted with the forum members. Members were asked to complete the measure on two separate occasions on either side of a lunch break. They were then asked to contrast their responses. Of the 10 people who participated, two responded slightly differently (on one item each) on the second occasion. Suggestions for improvement were made and these were incorporated into the measure.

3 RESULTS

3.1 REVIEW FINDINGS

3.1.1 Definitions of Safety culture / climate maturity

The term cultural maturity refers to the important safety culture elements (e.g. management commitment, trust, communication) that determine an organisation's readiness to implement a behavioural safety programme (Fleming and Lardner, 2002). They point out research to suggest that organisations should select behavioural safety programmes to match their level of cultural maturity to enable them to predict problems and help prevent the intervention failing.

3.1.2 Safety Culture Maturity (SCM) Models

The table below outlines five models related to safety culture maturity that have been developed to date. It is thought that models of this kind will assist organisations in assessing their level of safety culture maturity and identifying the most effective behaviour change interventions as a result (Fleming, 2001). Each model is described in full below.

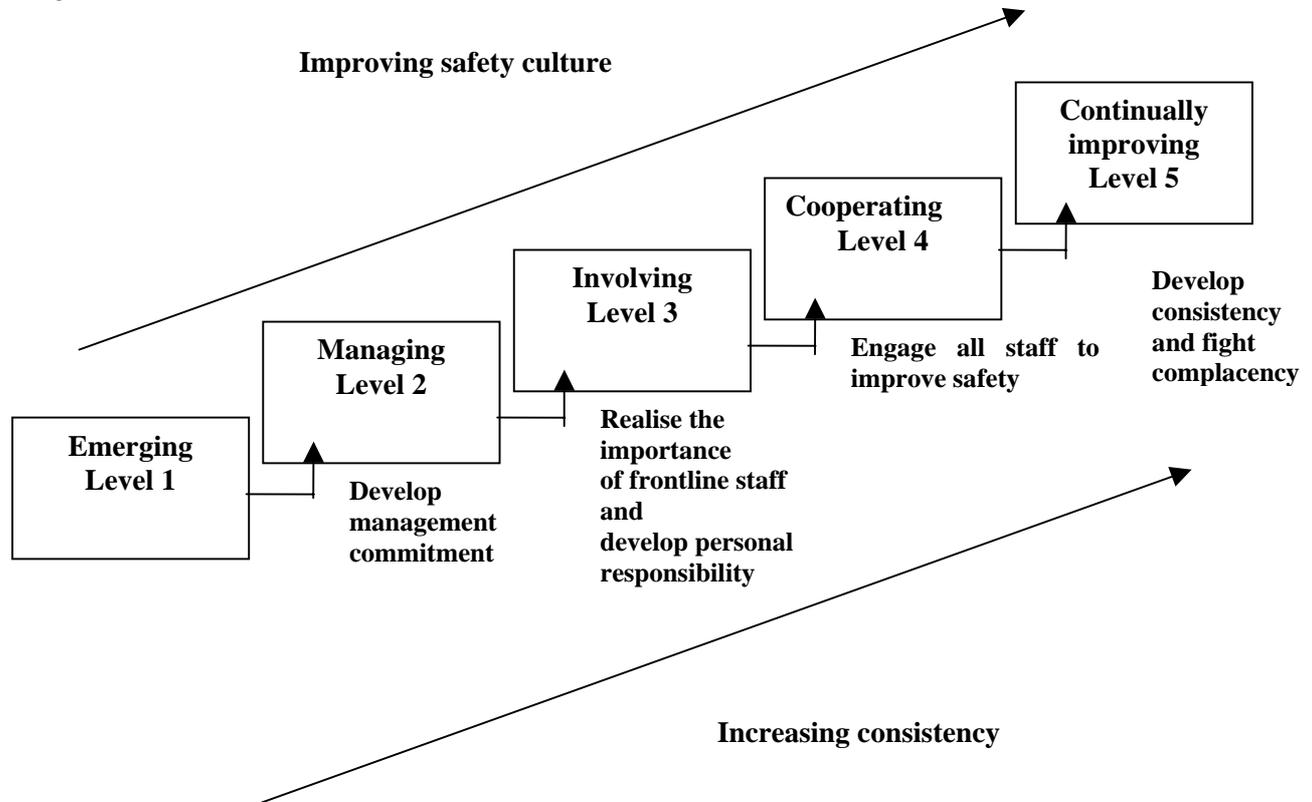
Name of Model	Author / date	Stages / Levels of Maturity				
		Emerging	Managing	Evolving	Cooperating	Continuous Improvement
Safety Culture Maturity Model (SCMM)	Fleming, M. (2001)	Emerging	Managing	Evolving	Cooperating	Continuous Improvement
Westrum's Typology of Organisational Communication	Lawrie, Parker and Hudson (2006)	Pathological	Reactive	Calculative	Proactive	Generative
Stages of Change Model	Prochaska and DiClemente, 1982 in Whysall, Z (2005)	Precontemplation	Contemplation	Preparation	Action	Maintenance
River Diagram Survey	Gordon, Kirwan, Perrin (2007)	Uncertainty	Core	Extended	Leading Edge	World Class
POPMAR Model	HSE, HSG65 (2003)	Policy	Organising	Planning	Measuring performance	Auditing and reviewing performance

3.1.2.1 Fleming's Safety Culture Maturity Model (2001)

Fleming (2001) suggests that organisations in the early stages of developing their safety culture will require different interventions from those with strong safety cultures. Consequently he

developed a safety culture maturity model to assist organisations in (a) establishing their current level of safety culture maturity and (b) identifying the actions required to improve their culture.

A diagram of the model is shown below.



The model states that the safety culture maturity of an organisation consists of ten elements, with the organisation's level of maturity being determined on the basis of their maturity on these elements. According to Fleming it is likely that an organisation will be at different levels on the ten components of the SCMM. Deciding which level is most appropriate will need to be based on the average level achieved by the organisation. The ten elements of the safety culture maturity model are detailed below.

- Management commitment and visibility
- Communication
- Productivity versus safety
- Learning organisation
- Safety resources
- Participation
- Shared perceptions about safety

- Trust
- Industrial relations and job satisfaction
- Training

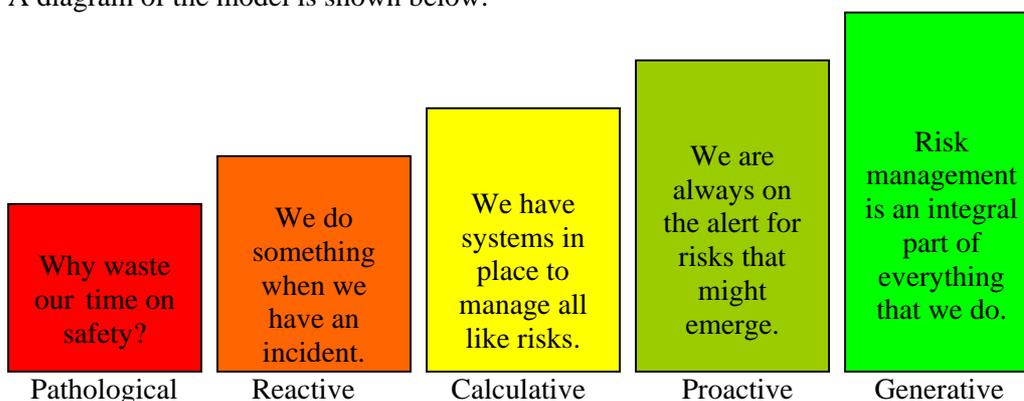
Fleming's model (detailed in the following table) consists of five iterative stages that organisations should sequentially progress through by building on the strengths and removing the weaknesses of the previous level. Jumping a level is therefore not advised.

Gordon et al., (2007) used Fleming's model and developed a tool that could be used by organisations to assess their level of safety culture maturity.

Name of stage	Definition
Emerging	Safety is defined in terms of technical and procedural solutions and compliance with regulations. It is not a key business risk and the safety department has the main responsibility. Accidents are seen as unavoidable and part of the job. Frontline staff remain uninterested in safety.
Managing	The organisation's accident rate is average but they have an above average number of serious accidents. Safety is seen as a business risk and management time and effort is put into accident prevention. Safety is regarded as adherence to rules and procedures. Accidents are seen as preventable. Managers believe accidents are solely caused by the unsafe behaviour of front line staff. Safety performance is measured by lagging indicators such as lost time due to injury (LTI) and safety incentives are based on reduced LTI rates. Senior managers are reactive in their involvement in health and safety, using punishment when accident rates increase. In the early stages of a safety culture (Levels 1 and 2) top management believes accidents are caused by stupidity, inattention and wilfulness on the part of their employees (in an operational environment). In a design organisation, management do not believe that their organisation can influence the safety of future operations. Many messages may flow from management, but the majority still reflect the organisation's primary production goals, often with 'and be safe' added on at the end.
Involving	Accident rates are low but have plateaued. The organisation believes the involvement of front line staff in health and safety is crucial if improvements are to be made. Managers believe accidents are caused by a variety of factors and are often due to management decisions. A significant proportion of frontline employees are willing to work with management to improve health and safety. The majority of staff accept personal responsibility for their own health and safety. Safety performance is actively monitored and the data is used effectively. The foundations are laid for acquiring beliefs that safety is worthwhile in its own right. By constructing deliberate procedures, an organisation can force itself into taking safety seriously. At this stage the values are not yet fully internalised, the methods are still new and individual beliefs generally lag behind corporate intentions. However, a safety culture can only arise when the necessary technical steps and procedures are already in place and in operation.
Cooperating	The majority of staff believe health and safety is important both morally and economically. Managers and frontline staff believe that a wide range of factors cause accidents and their root causes are often due to management decisions. Frontline staff accept personal responsibility for their own and other's health and safety. The importance of all employees feeling valued and treated fairly is recognised. The organisation puts significant effort into proactive measures to prevent accidents. Safety performance is actively monitored using all data available. Non-work accidents are also monitored and a healthy lifestyle is promoted. The organisation gets to grips with safety issues with commensurate resources.
Continuous Improvement	Prevention of all injuries or harm to employees (work and home) is a core company value. The organisation has had a sustained period (years) without a recordable accident or high potential incident, but there is no feeling of complacency. They always believe their next accident is just around the corner. The organisation uses a range of indicators to monitor performance but it is not performance-driven, as it has confidence in its safety processes. The organisation is constantly striving to be better and find better ways of improving hazard control mechanisms. All employees share the belief that health and safety is a critical aspect of their job and accept that the prevention of non-work injuries is important. The company invests considerable effort in promoting health and safety at home. The organisation is largely controlling and managing safety effectively but without complacency, and is continually improving its efforts.

3.1.2.2 Lawrie et al (2006) – based on Westrum’s Typology of Organisational Communication.

Lawrie, Parker and Hudson (2006) developed a framework / model for safety culture maturity based on Westrum’s typology of organisational communication. The framework had face validity identified in a previous study. In order to assess whether the content of the framework was internally consistent in terms of the levels of safety culture, a further study was carried out. A diagram of the model is shown below.



Source: Parker, D, (2007). Understanding and improving organisational culture. www.achs.org.au/pdf/tue.tut2.parker.pdf. Accessed 19.9.08.

Detailed below is an example of the model used and the statements for one of the elements used to define each stage.

Name of stage	Definition
Pathological	<ul style="list-style-type: none"> Individuals look after themselves e.g. ‘who cares about safety as long as we don’t get caught?’
Reactive	<ul style="list-style-type: none"> Commitment to health, safety and environment and care for colleagues diminishes after a period of good safety performance. After accidents there is a voiced commitment to care for colleagues by both management and the workforce. ‘Look out for yourself’ is the rule when it comes to safety. ‘Safety is important, we do a lot every time we have an accident’.
Calculative	<ul style="list-style-type: none"> People know how to pay lip service to safety, but practical components may prevent complete follow through. There is a trickle down of management’s increasing awareness of the cost of safety failures. We have systems in place to manage all hazards.
Proactive	<ul style="list-style-type: none"> The feeling of pride in health, safety and environment and care for colleagues is not universal. Pride in health, safety and environment is beginning to develop, increasing the workforce’s commitment to health, safety and environment and care for colleagues. We work on problems that we still find.
Generative	<ul style="list-style-type: none"> Levels of commitment and care are very high and are driven by employees who show passion about living up to their aspirations. Health, safety and environment standards are defined by the workforce. Health, safety and environment is how we do business.

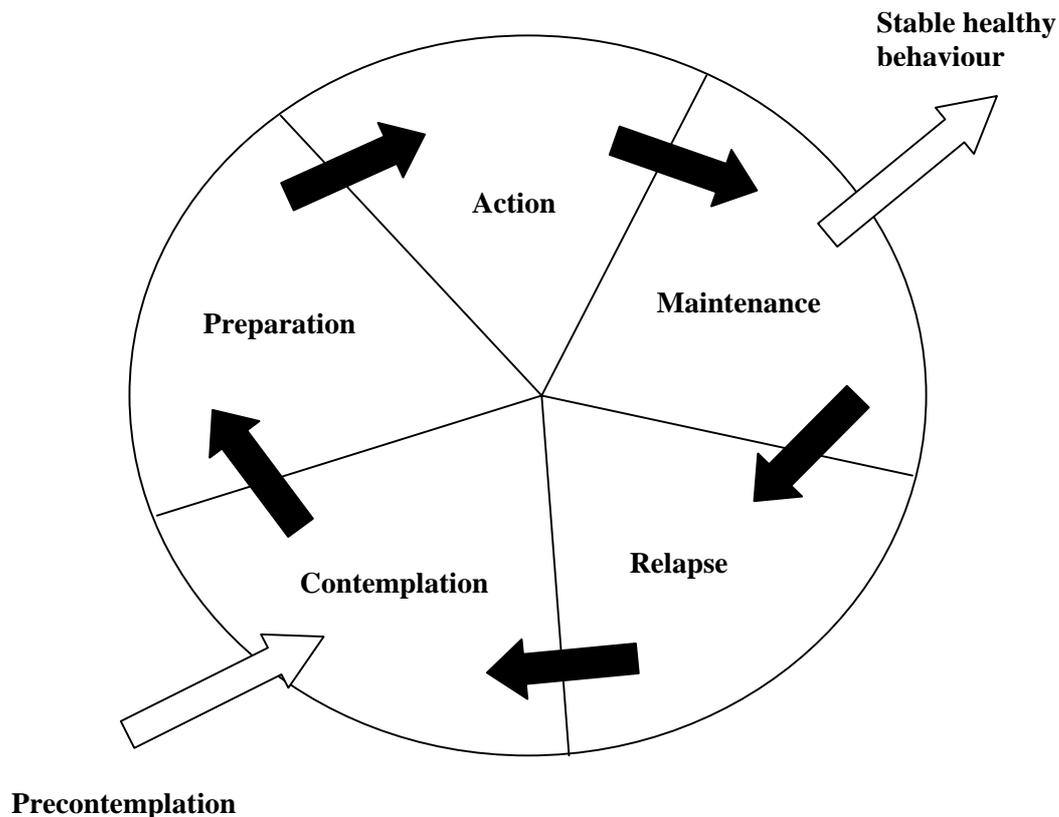
The preceding statements related specifically to ‘commitment level of workforce to health, safety and environment and care for colleagues’, i.e. one of the eighteen organisational aspects used to assess safety climate maturity. Lawrie et al., (2006) used a further six areas namely:

- ❑ Balance between health, safety and environment and profitability.
- ❑ Workforce interest in competency and training.
- ❑ Work-site job safety techniques.
- ❑ Purpose of procedures.
- ❑ Repercussion and feedback after accidents.
- ❑ Audits and reviews.

They also provide statements for each of the levels related to the above six elements.

3.1.2.3 *Whysall, Z (2005) – Stages of Change Model*

This research attempted to improve the efficacy of interventions by applying the stage of change approach (Prochaska & DiClemente, 1982) to the workplace. A diagram of the model is shown below.



The model developed consisted of five stages detailed in the table below.

Name of stage	Definition
Precontemplation	Resistance to recognising or modifying the problem behaviour.
Contemplation	Recognition of the problem, thinking about changing, but not ready to act.
Preparation	Intending to change in the next 30 days, and/or having made specific plans to do so.
Action	Having engaged in behaviour change, no longer than 6 months ago.
Maintenance	Initiated changes over 6 months ago, working to consolidate gains made and avoid relapse.

The model also provides implications for promoting change in practice, as each stage is dominated by specific types of underpinning attitudes, beliefs and intentions regarding the health issue. The key constructs thought to influence movement between the stages are decisional balance and habit strength (Velicer et al., 1985 and 1990). Decisional balance reflects an individual's relative weighing up of the pros and cons of changing. As individuals progress into the more advanced stages of change, the cons begin to outweigh the pros of the risky behaviour.

Research adopting the transtheoretical model has shown that stage matched interventions increase the likelihood that individuals will take action to change (e.g. Prochaska et al., 1993; Rakowski et al., 1998).

3.1.2.4 Gordon et al, (2007) River Diagram Survey

Gordon et al., (2007) carried out a study within the Air Traffic Management industry. They adapted Fleming's SCMM model, using it to later develop a survey to assess safety culture maturity, known as the Safety Culture Survey.

The River Diagram Survey aimed to examine worker commitment to safety and was initially developed from the DNV (Det Norske Veritas) auditing system and later tailored to suit the air traffic navigation domain. It was first used at the Head Quarters of EUROCONTROL in Brussels. The tool was further refined for the EEC, using the Safety Culture Survey as well as a causally linked set of safety principles. An additional element was developed to specifically cover the research activities at the EEC (e.g. ATM System Development).

The River Diagram has the following five levels of maturity outlined in the table below:

Name of stage	Definition
0–1 Uncertainty	Indicates that no real systems are in place and there is a potential lack of control.
1–2 Core	Indicates that the basics are in place and awareness is building.
2–3 Extended	Indicates that there are programmes to develop a formalised Safety Management System in place.
3–4 Leading Edge	Represents “leading edge” practices typical of a mature management system.
4–5 World Class	Indicates state-of-the-art performance with clear signs of continual improvement.

The River Diagram comprises nineteen elements contained within the following five main elements, which relate to the key activities of a Safety Management System as defined in the EUROCONTROL Safety Regulatory Requirements (ESARR3) and in the Agency Safety Policy:

- (i) Policy.
- (ii) Planning.
- (iii) Achievement.
- (iv) Assurance.
- (v) Promotion.

This model was tested, evaluated and compared with the Safety Culture Survey, and is discussed in Section 3.1.3.

3.1.2.5 POPMAR model - HSG65, HSE 2003

HSE detailed their model describing the principles and management practices, which provide the basis of effective health and safety management. The aim is for directors, managers, health and safety professionals and employee representatives to use the model to improve health and safety in their organisations. HSE put forward the message that organisations need to manage health and safety with the same degree of expertise and to the same standards as other core business activities, if they are effectively to control risks and prevent harm to people. Their model, detailing the key elements of successful health and safety management, is outlined below.

Policy

The guidance argues that effective health and safety policies set a clear direction for the organisation to follow, contributing to all aspects of business performance and encouraging continuous improvement. The policy should follow current legislation ensuring stakeholders expectations are satisfied. There are cost effective approaches to preserving and developing physical and human resources, which reduce financial losses and liabilities.

Organising

Once the policy is developed, an effective management structure and arrangements should be in place to deliver the policy. All staff should be motivated and empowered to work safely and to protect their long-term health, not simply to avoid accidents. This should be underpinned by staff involvement and participation, sustained by effective communication and the promotion of competence so that all can make a valuable contribution to improving health and safety.

The guidance also states that there is a shared understanding of the organisation's vision, values and beliefs. The visible and active leadership of senior managers fosters a positive health and safety culture.

Planning

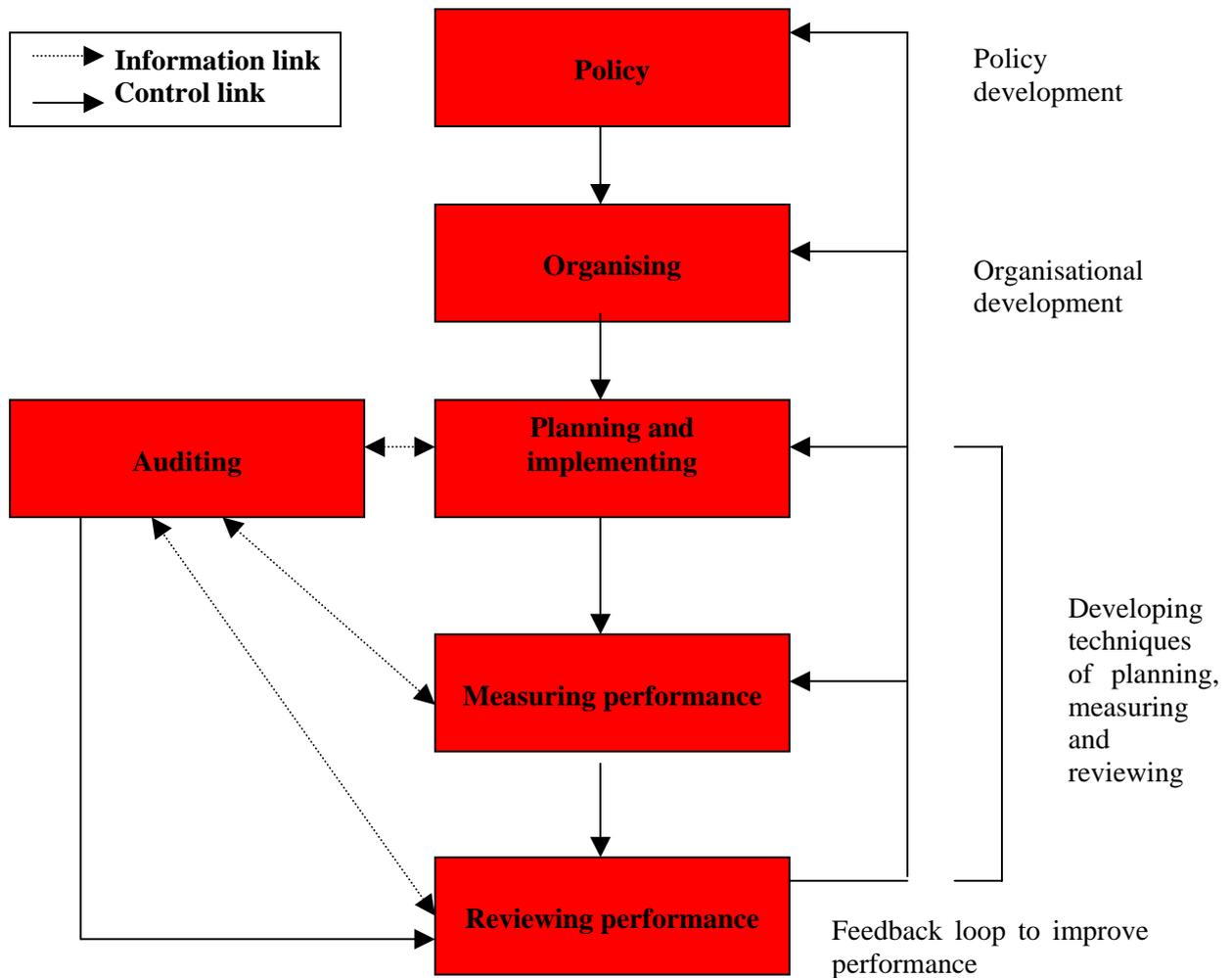
Following the above, there is now a planned and systematic approach to implementing the health and safety policy through an effective health and safety management system. The aim here is to minimise risks. Risk assessment methods should be in place to eliminate hazards and reduce risks. The selection and design of facilities, equipment and processes should be implemented to eliminate risks. Risks are also minimised by the use of physical controls, personal protective equipment and systems of work. Performance standards are established and used for measuring achievement. Specific actions to promote a positive health and safety culture are identified.

Measuring performance

The next stage is to measure performance. Performance is measured against agreed standards to reveal when and where improvement is needed. Active self-monitoring is also in place. This looks at both hardware (premises, plant and substances) and software (people, procedures and systems) including individual behaviour and performance. If the controls in place fail, reactive monitoring discovers why by investigating accidents, ill health or incidents, with the aim of establishing the immediate cause of the sub-standard performance and identify the underlying causes and implications for the design and operation of the health and safety management system. Long-term objectives are also monitored.

Auditing and reviewing performance

Finally, the next stage is for the organisation to learn from all relevant experience and apply the lessons learned. Performance is systematically reviewed based on data from monitoring and from independent audits of the whole health and safety management system. This review forms the basis of self-regulation and compliance with the Health and Safety at Work Act. There should now be a strong commitment to continuous improvement, involving the constant development of policies, systems and techniques of risk control. Performance is assessed by reference to key performance indicators and external comparison with the competitors. Performance is also recorded in annual reports. Information is fed back into all previous stages of the model to improve performance. A diagram of the model is shown overleaf.



3.1.3 Tools developed to assess SCM

1. Safety Culture Survey, Gordon et al (2007)

Having developed the River Diagram Survey (RDS) based on Fleming's SCMM, Gordon et al., (2007) then developed a further survey termed the Safety Culture Survey (SCS). The aim of this was to identify the areas of weakness within the safety culture of the organisation.

The survey contained twenty-one elements (found to be relevant to safety culture) contained within the following four main themes:

- (i) Management demonstration and commitment.
- (ii) Planning and organising for safety.
- (iii) Communication, trust and responsibility.
- (iv) Measuring, auditing and reviewing.

They divided the five levels of safety culture maturity into two levels namely higher and lower, with levels one and two being lower and levels four and five being higher. They then developed statements to match both levels. For example:

Element:

Management Commitment to Safety

Statements:

Levels 1 and 2 - Safety is considered an employee responsibility.

Lip service is paid by senior management to the importance of safety commitment.

Levels 4 and 5 - Management and staff frequently discuss safety.

Senior management demonstrate commitment to safety.

To test both surveys, the SCS was administered to 40 staff across the organisation (cross section sample). The RDS provided a basis for 27 structured interviews with core management who were asked to rate the SMS elements on a 0-5 scale and then each of the elements were discussed in detail with participants.

Comparison of the two surveys was done by aligning the statements. The similarities were found whilst making a detailed comparison of the elements in both surveys. The authors found that there were twelve elements, which could be compared directly, and eight elements from the SCS that could not be directly compared with the River Diagram elements, suggesting a degree of overlap between the two approaches.

According to the T-tests, the most convergence between the surveys was with the following three elements: 'Responsibility for Safety', 'Safety Management System (SMS) Documentation' and 'Organisational and Safety Learning', possibly indicating that the items contained within each of the elements were similar, i.e. they are addressing safety culture but in slightly different ways.

In discussing their findings, Gordon et al., (2007) explained that the SCS gains a 'grass roots' perspective on safety. The participants are anonymous, they are a randomised cross-section, and say what they feel is the real state of safety. They argued that this still seems to be the most appropriate way to gain an honest assessment of safety culture/climate, although interviews might enhance the accuracy (by clarifying questions, etc.) and reduce the variation of responses.

They found that the River Diagram Survey, however, was very constructive in determining a way forward for the SMS and procedures. It elicits information from the management, and gives them something tangible to work with afterwards. This does not mean it is more diagnostic, but rather that it is more concrete and procedural in nature and in its recommendations / solutions, compared to the more 'social' oriented survey approach.

2. Manager stage of change tool and worker stage of change tool - Whysall (2005)

Using the Stage of Change Model outlined earlier, Whysall was concerned with improving the efficacy of interventions to tackle musculo skeletal disorders (MSDs) in the workplace. The aim was to examine the applicability of the stage of change approach to health and safety interventions in the workplace. Consequently, tools were developed to assess individual worker and organisational stage of change towards reducing the risks of MSDs. Two surveys were developed.

Based upon the traditional method of assessing stage of change used in previous work, a small set of Likert style questions were used to assess each stage. These questions were half designed as an alternative means of assessing stage of change, and half to explore specific barriers and facilitators that may influence effective reduction of ill health in the workplace.

Questions explored their concern for the risk of musculo skeletal problems, whether they were thinking about taking action to reduce the risk, whether they knew how to reduce the risk and whether they had made any changes. In this way items were included to assess the delimiting factors underpinning each of the stages of change. The surveys were tested on a variety of industry types, 100 managers and 168 workers and were found to have high reliability and validity.

Following this, the second phase of the research involved pre- and post-intervention monitoring of twenty-four workplace interventions aimed at reducing the risks of work-related MSDs. In approximately half of these interventions, the interventions were tailored according to managers' and workers' readiness to change. The effectiveness of tailored compared to 'standard' interventions was measured on a variety of levels, including stage of change, self-reported musculoskeletal pain and discomfort, and safety climate. These evaluations were conducted 4-6 months after the implementation of the interventions.

Overall, tailored interventions appeared to be significantly more effective than standard interventions on a number of levels:

- Promoting risk-awareness.
- Promoting behaviour change.
- Promoting the maintenance of risk-reducing behaviours.
- Reducing self-reported musculoskeletal pain and/or discomfort in a number of body areas.

This research provided scope for improving the success of health and safety interventions by tailoring advice according to stage of change, in order to tackle the attitudes, beliefs, and intentions that underpin behaviour in the workplace.

The stage of change approach recognises the cyclic nature of change, and the consequential need for ongoing efforts to maintain healthy behaviour and prevent risks. The staged approach offers a practical framework that can be used to help guide the change process and provides support for the increased effectiveness of interventions that are tailored according to the change recipient's stage of change.

3. Hearts and Minds toolkit

The Hearts and Minds safety programme, developed by Shell Exploration & Production in 2002, is based on research with leading universities, and is being successfully applied in Shell companies around the world. The programme uses a range of tools and techniques to help the organisation involve all staff in managing Health, Safety and Environment as an integral part of their business.

The overall approach is called 'route to the top', which means progressing up the HSE culture ladder developing an HSE maturity to become truly proactive and generative. This involves three key elements: Personal Responsibility, Individual Consequences, and Proactive Interventions.

Personal Responsibility:

This concerns having an understanding of the HSE expectations, including what is expected of you and what to expect from others. It necessitates agreement on how you are going to deliver

on those commitments, and whether you have the skills and competence to do so. These expectations and intentions must be part of a clear line of accountability that is regularly discussed so that people only accept for what they can deliver. This should be part of the existing management system. The Hearts and Minds toolkit includes specific tools and techniques to support appropriate behaviours for personal responsibility.

Individual Consequences:

This concerns the adoption of new behaviours and compliance. There needs to be a clear link between actions and consequences and again tools are provided.

Proactive Interventions:

This requires personal interventions to influence the behaviours of others and accept interventions by others. Again there are appropriate tools that can be used at this stage of the process, including one to understand the organisation's culture and making change last.

Understanding your culture tool

The toolkit is based on Westrum's Typology of Organisational Communication and is there to develop an understanding of the organisation's culture. The characteristics of organisations are described at each level and typical descriptions are given for 18 dimensions that can be used to identify the current level of an organisation. They call this the HSE culture ladder.

It aims to give an understanding of both the present and desired cultures, and what personal behaviours individuals can adopt to reduce the gap. Individuals read each organisational characteristic / dimension and tick the relevant safety culture maturity (SCM) level. A scoring sheet is provided to calculate the overall score. The goal is to identify weaker areas to target. For each area, individuals determine how to change their behaviour to reach their desired level of SCM, by writing down and discussing 'I...' statements. From this, they formulate a personal action plan to change their behaviour.

This tool also works to gain leader buy in and commitment.

Making change last tool

To ensure change is continued the authors have adopted the Prochaska & DiClemente's, (1982) Stages of Change Model: ignorance, awareness, preparation, action and maintenance, referred to as the Hearts and Minds change process. This tool can also be used to continually test the commitment of the leaders and managers using the 'seeing yourself as others see you' appraisal technique.

The 'road map brochure' contains a description of each tool and when to use it.

4. Changing Minds toolkit

The Task Group involved in this project adopted the capability maturity model and used it to develop a safety culture maturity model suitable for the UK oil and gas industry. The capability maturity model concept enables organisations to establish their current level of maturity and identify what they need to focus on to reach the next level. Organisations at different levels of maturity are likely to find different types of tools and techniques most helpful for moving to the next level of maturity. This model provides a framework to assist in the selection and implementation of appropriate behavioural interventions. The safety culture maturity model presented in this report refers to the maturity of the organisational behaviours, rather than the maturity of the safety management systems.

This model is based on Fleming's SCMM where each level of the safety maturity model consists of the following ten elements:

- ❑ Management commitment and visibility.
- ❑ Trust, including trust between management and employees and between colleagues.
- ❑ Communication, refers to the style (e.g. two way) and effectiveness of communication.
- ❑ Participation, which is the extent to which front line staff are involved in decisions.
- ❑ Productivity versus safety.
- ❑ Learning organisation: refers to the ability of an organisation to learn from mistakes.
- ❑ Safety resources, including safety staff and the time employees can spend on safety.
- ❑ Shared perceptions about safety, refers to the extent all employees have a shared vision.
- ❑ Industrial relations and job satisfaction.
- ❑ Training, includes the value placed on training, the type and resources available.

The document argues that each stage overlaps with the next because an organisation may not be at the same level on each of the ten elements of the safety culture maturity model. The safety culture maturity may also vary between different work sites within an organisation. Establishing where a company is in terms of its safety culture maturity is an important issue for selecting appropriate behaviour modification programmes and implementing them effectively.

The framework can be used to identify different interventions that are appropriate for sites at different levels of maturity. This process will ensure that all sites are taking action to address the behavioural aspects of safety, but the flexibility of the model allows individual sites to select interventions, which are appropriate for their level of maturity.

The Task Group have developed a Safety culture Improvement process using the SCMM and combining it with the Total Quality Management (TQM: assess, plan, do, monitor) approach. Consequently, for each SCM level, organisations should adopt the TQM method. The model can be used to help identify when it is appropriate to use the different types of behavioural tools that have been developed. In the 'assess' phase, diagnostic tools such as safety climate surveys, structured interviews and workshops can be used to assess the current level of safety maturity. This information assists in the selection of an appropriate behaviour intervention and in planning how to implement the programme. Once a programme has begun to be implemented, performance indicators should be identified to monitor the take-up and implementation of the programme. After a period of using a programme, its impact on safety should be re-assessed by examining changes in the safety culture maturity, as well as any changes in leading safety performance indicators and lagging accident statistics.

This article goes on to provide a list of interventions aimed at the different levels of SCM. It also provides a chart detailing each safety culture maturity element and typical phrases that describe the current situation for each of the five levels. For example:

Element:
Communication

Statements:

Level 1 and 2 - Safety communication is one-way information provision.

Level 3 - Communication is generally two-way.

Levels 4 and 5 - Communication is in the form of communication and feedback is prompt.

5. HSL (2008) –Safety Climate Tool, version 1.0

HSE's Health and Safety Climate Survey Tool was developed to provide organisations with the necessary practical help to promote employee involvement in health and safety and to improve aspects of their existing health and safety culture and climate. HSL has recently carried out a revision of this tool, using 40,000 questionnaire returns from the original survey tool to develop an updated and improved version of the original. The change process involved considering psychological validity and statistical validity and was piloted across a range of sectors, including manufacturing, major hazards and construction. The revised version of the tool (titled, 'HSL Safety Climate Tool, (SCT) version 1.0') consists of 40 questions (38 are retained from the original) and 8 dimensions:

- Organisational commitment
- 'Health and Safety' oriented behaviours
- Health and safety trust
- Usability of procedures
- Engagement in health and safety
- Peer group attitude
- Resources for health and safety
- Accidents and near miss reporting

3.1.4 Industries involved

From the studies above it appeared that the majority of research using tools and techniques to assess safety culture maturity have been carried out in the following three industries:

- Petrochemical (oil and gas).
- Offshore.
- Air Traffic Management.

3.2 DOCUMENTED DECISIONS

The following provides information on all discussions that were held between members of the HSL project team and the internal expert panel.

3.2.1 Selection of a model

The HSL project team met to discuss which model to adapt to suit the purposes of the project. The following decisions were made:

- ❑ The Stage of Change Model was deemed unsuitable as it was focused on the process of change and how change occurs rather than specifically on safety culture maturity.
- ❑ The POPMAR model was deemed more suitable for the elements it contained rather than as a model to be adopted for the use of safety culture maturity.
- ❑ The River Diagram Survey was based on Fleming's model and consequently it was decided that going back to the source would be more appropriate than using the adapted version.
- ❑ Due to the above decisions the HSL project team were left with two models. Both the Westrum model and the Fleming model had been applied within the Petrochemical industry and therefore could not be distinguished between one another. The content and structure of both models were then weighed up. It was identified that Fleming's model was more detailed than Westrum's model incorporating more of the essential elements that are needed for lasting behaviour change. However, the progression of safety culture maturity was inconsistent, with different components being added as the reader progressed through the stages of the model. This amounted to too much detail and impacted on its ease of use. The Westrum model was more intuitive and displayed consistent progression throughout all of its stages. However, its heavy focus on worker engagement meant that it failed to encompass enough elements of safety culture maturity. The use of the term 'pathological' was also felt to be too negative.

Based on the discussions above, it was decided that a combination of both the Fleming model and the Westrum model would be used to develop a Safety Culture Maturity Model suitable for use in construction SMEs. Due to the consistent progression of the Westrum model, the HSL project team decided to incorporate more elements to this model so that its focus was not just on worker engagement. However, it was important that it had similar depth and coverage of information as Fleming's model. A decision was also taken to alter the language ensuring that it was more positive in its approach and easy to understand. Consequently, the names for each level were changed, e.g. from 'pathological' to 'starting blocks' and a simple statement was generated to explain each level, e.g. level 1 (starting blocks) is encompassed by the phrase, 'unless I get caught I'm not worried'.

Once the model had been developed the HSL project team met with an internal expert panel to discuss the decisions made. The panel agreed with the models chosen and the changes made.

3.2.2 Development of Elements

The elements from the following models and toolkits were reviewed and discussed:

- ❑ Fleming’s Safety Culture Maturity Model.
- ❑ Changing Minds Toolkit.
- ❑ Westrum’s Typology of Organisational Communication.
- ❑ HSG65.
- ❑ HSL Safety Climate Tool, (SCT) version 1.0.

Decisions were based on the overlap of elements provided by the different models and a need to incorporate worker engagement and organisational learning, as both are deemed important to ensure lasting behaviour change. It was decided that training and competence would not be included within the model, as they were not deemed to be cultural issues.

Consequently the HSL project team decided on the following elements:

- ❑ Commitment.
- ❑ Communication.
- ❑ Organisational learning.
- ❑ Prioritisation of health and safety.
- ❑ Planning and organising of health and safety.
- ❑ Measurement.

Following this, the decisions made were discussed with the internal expert panel. Through consultation it was decided that as ‘communication’ encompassed worker engagement and as worker engagement is important to ensuring the success of lasting behaviour change, the element of communication should be changed to ‘worker engagement’ and should look to cover the involvement of staff and the importance that the organisation attaches to health and safety. It was felt that the term communication was too broad.

The order in which the elements should appear in the toolkit was also discussed. It was decided that they should reflect the cyclical process organisations are likely to go through in tackling health and safety. Consequently, the following order was suggested:

- ❑ Commitment.
- ❑ Worker Engagement.
- ❑ Prioritisation of health and safety.
- ❑ Planning and organising of health and safety.
- ❑ Measurement.
- ❑ Organisational learning.

3.2.3 Development of Statements

The HSL project team met to discuss the generation of statements for each element for each stage of the model. It was decided that there would be five statements per element, one for each level of safety culture maturity. This would amount to thirty statements overall. It was essential that the statements were consistent in their progression throughout the five levels and complemented the element they were describing. The HSL project team generated the statements and then consulted with the internal expert panel to ensure a consensus decision was reached.

During the meeting with the internal expert panel each element was discussed in turn. Several decisions were reached by consensus. These are outlined below.

- ❑ **Commitment:** The expert panel agreed with the statements generated by the HSL project team and consequently these remain unchanged. However it was felt that the highest level statement of commitment should be altered slightly to reflect that it is the workforce as well as managers who should be driving health and safety standards forward. Consequently the statement was changed from '*Health and safety standards are driven by the workforce*' to '*Health and safety standards are also driven by the workforce*'.
- ❑ **Communication / Worker Engagement:** It was decided to focus communication on worker engagement and remove all references in the statements made to accident rates and accident causation. Statements of this kind were considered better placed in the '*Organisational learning*' element.
- ❑ **Prioritisation of Health and Safety:** The panel decided that the overarching theme running through this element should be the extent to which production takes priority over safety. Consequently some of the statements were changed to reflect this.
- ❑ **Planning and organising health and safety:** Consensus was reached that this element should encompass issues related specifically to compliance and the attention given to observing health and safety obligations. It was also decided to remove references to extending health and safety practices to the home.
- ❑ **Measurement:** It was decided that use of the terms leading and lagging indicators was too misleading and there was debate amongst the expert panel as to their definition. A further criterion of the toolkit was its use of layman's language. Consequently these terms were removed and replaced with examples of leading and lagging indicators.
- ❑ **Organisational Learning:** The issue was brought up that often SMEs have more informal systems in place for organisational learning and therefore this distinction should be reflected in the statements. It was also felt that there should be recognition within the statements of near miss reporting as well as accidents. Comments were also made that organisations want to compare themselves with their competitors and this again should be reflected in the statements. Accident causation was moved from '*Communication*' to '*Organisational learning*' due to the alterations made in the '*Communication*' element.

3.2.4 Development of Solutions

The HSL project team met to discuss and reach consensus on the solutions that organisations could implement in order to move through the levels of safety culture maturity. The decision was taken to develop solutions that were consistent with the elements from one stage to the

next. The solution should therefore aim to capture the difference between the stages for any given element of the model. To begin with, solution statements were generated by element with a separate statement for each intervening level, i.e. one solution for an organisation to progress their commitment from level 1 to 2, a solution to progress from level 2 to 3, etc. This amounted to the generation of twenty-five statements in total. Once all solutions had been generated there appeared to be overlap between the solutions. The decision was taken to merge some of the solutions. The final list of solutions generated can be found in the final version of the Health and Safety Culture Maturity Measure.

3.2.5 Layout of the measure

The HSL project team met to discuss the layout of the Health and Safety Culture Maturity Measure. Several decisions were made and are outlined below.

The first decision was made to structure the statements by element rather than by each level of safety culture maturity to ensure the toolkit would not lead the user into selecting a higher level of safety culture maturity. The decision was also taken to remove any references to the levels of safety culture maturity when users were completing the survey, again to prevent the user from self-selecting inaccurate statements.

The layout of the updated version of the HSL Safety Climate Tool (SCT), version 1.0 was used and adapted to suit the needs of this survey, as its format was user friendly and intuitive. The survey would consist of two pages, the first page containing the statements by element, where users tick the statements that most readily apply to them. Once completed, users turn to page two to identify which level of safety culture maturity their organisation is at, receive a detailed description of their level and identify appropriate solutions that they can implement to progress to the next level. Rather than incorporate a robust and intricate scoring system, it was felt that users would more readily use the survey if the scoring were quick and easy. Consequently, the decision was taken that users would identify the level that most of their statements fitted (e.g. mostly 1's). The HSL project team decided that the second page should read like a flow chart to make it easier for users to identify relevant solutions.

3.2.6 Consultation with the BCWE Forum

Forum members were shown a draft version of the Health and Safety Culture Maturity Measure. Their main suggestions for improvement were that:

- The statements were specified as behaviourally as possible.
- Numerical references were replaced by letters in order to discourage zealous scoring.
- Wherever possible statements progress for each stage from a few to all participants.
- The solutions were expressed as a matrix rather than a list so that end-users could work out the specific actions necessary according to the level of maturity for a given element of the model. This would allow users to assess their safety culture maturity in two ways. They could either focus on gaining an overall understanding of their maturity level, or gain an in

depth understanding of where they lie and the specific solutions they need to implement for each element.

- The instructions allow for application of the measure to both directly employed and sub-contracted staff.

3.3 SUMMARY

The final version of the SCM measure incorporates the changes suggested by the BCWE Forum members in section 3.2.6. This will form part of the People First Toolkit currently being developed to assist construction small and medium sized enterprises (SMEs) to improve their health and safety performance. This measure will form an integral part of this toolkit and will undergo more extensive evaluation than has been conducted to date in the next phase (Phase III) of the research.

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5.7 APPENDIX 7: DESCRIPTION OF THE DECISIONS UNDERPINNING PROGRESSION OF BEHAVIOURAL STANDARDS

Background

At meeting of 23/9/08, the project steering group discussed the interim findings of HSE's barrier analyses of fatal data carried out by a Specialist Human Factors Inspector. At that point, only simple qualitative analysis had been conducted for all fatal accidents spanning 2000-2006. Still left to do therefore was the remaining barrier analyses of fatal data covering 2006-2008 and a quantitative analysis of the whole data set (i.e. 2000-2008)

Based on the analyses already conducted, the team identified a number of fatal accident categories* and came to a subjective agreement on which of these were the most common. These were identified as the following:

- 1 Reversing incidents
- 2 Overturning incidents
- 3 Struck by plant machinery
- 4 Failing to turn off before getting off
- 5 Excavations
- 6 Falls through unprotected voids
- 7 Falls from flat roofs
- 8 Inadequate scaffolding installation
- 9 Entering weakened structures
- 10 Contact with overhead power lines

(*Implicit in this process were the requirements that the accidents were ones that might typically be experienced by SMEs, which should be preventable through applying standard safeguards and solutions, and which should be responsive to intervention, including behavioural change and worker engagement initiatives)

It was understood that these categories were provisional, pending completion of the qualitative barrier analysis of the remaining data (2006-2008) and a further quantitative analysis of clearly discernible and SME-relevant fatal accident categories. The quantitative analysis is described below.

Identification/ refinement of fatal accident categories and their quantitative analysis

Stage 1: Identification of fatal accident categories

There were two inter-related strands to this process:

i) Refining the original fatal accident categories

While it was useful in some cases to replicate the classifications already used in the annual fatal accident summaries, generally there was greater value and insight to be gained by conducting a finer-grained analysis and deriving more precise sub-classifications. For example, two sub-categories: *Fatal incidents involving working in, on or adjacent to pre-weakened structures* and *Fatal Incidents involving wall underpinning/ walls being undermined* were abstracted from the original and far broader category of *Demolition/ Collapse*.

ii) Refining and adding to the accident categories identified at the 23/9/08 meeting

Most categories were carried over unchanged from this meeting:

- Overturning incidents
- Failing to turn off before getting off
- Excavations
- Falls through unprotected voids
- Falls from flat roofs
- Entering weakened structures
- Contact with overhead power lines

However, there were also a couple of significant changes:

Firstly, with regard to the 'Inadequate scaffolding installation' category, it was thought more useful to provide separate categories for mobile/ tower scaffold and tube and fitting/ system scaffold. Secondly, 'Reversing incidents' and 'Struck by plant machinery' were combined into a single category, 'Fatal incidents involving pedestrians being struck by moving plant'. (This excluded detachment of quick hitch buckets/ mechanical failure/ TTM incidents/ Driverless incidents/ overturns and lifting failures – some of which were covered by separate analyses).

Further categories were identified as follows:

- Fatal incidents involving ladders
- Fatal incidents involving fragile roofing materials (excluding falls through joists)
- Fatal incidents involving lifting failures (excluding crane collapse)
- Fatal incidents involving asphyxiation/ fume poisoning
- Fatal incidents involving falls from vehicles
- Fatal incidents involving quick-hitch failures

- Fatal incidents involving falls from mezzanine floors

Identification of further categories was based on the same criteria that had been used previously, namely:

- The category should be distinct, clearly defined and useful
- Fatal accidents in that category should have occurred in more than just one year in the time span being analysed (2000-2008)
- SMEs were likely to experience the risks associated with an accident category
- SMEs would have some control over the risks associated with an accident category
- The accidents within a category should (ideally) be generally preventable through applying standard safeguards and solutions

In total, 18 fatal accident categories were identified (see Table 1). Collectively, these accounted for approximately 58% of all fatal construction accidents 2000-2008.

Clearly, a significant proportion of accidents were excluded from the analysis. Broadly speaking, this was because they failed to meet the criteria outlined above. However, it is useful to outline in a bit more detail some of the specific reasons for exclusion. These were as follows:

- Certain accidents were so rare as to be regarded as freak events (e.g. TTM workers run over by a runaway horse-drawn hearse). They were neither foreseeable, nor (often) preventable
- Others were excluded not as much because they appeared to be rare, but more so because they failed to fall into discrete, easily identifiable categories
- Certain work activities were not relevant to most construction SMEs (thus, though TTM was clearly associated with a high death rate, it was nevertheless excluded because it was regarded as a specialist, stand-alone work category. The same reasoning was applied to steeplejacks)
- Accidents likely to have complex and technical failure modes were excluded (e.g. crane collapses/ incidents involving massive mechanical failure)
- Fatal incidents involving (usually elderly) members of the public walking into street work areas were excluded
- Many electrocutions were excluded because it was difficult to identify clear patterns of failure
- Some accidents were excluded because it was not possible to easily identify RP precautions that would have prevented the accident (many of the TTM accidents were of this nature, as were some of the Demolition/ Collapse incidents)
- Many accidents were excluded for the simple practical reason that there was insufficient information available to conduct even the most rudimentary of barrier analyses
- Accidents where post-accident medical complications/ hospital infections had a role were excluded

- Accidents where a person had a seizure/fit were excluded

Stage 2: Quantitative Analysis of the 18 Fatal Accident Categories

The year-by-year death rates for each class of accident were calculated and tabulated (18 tables). In principle this would allow some form of statistical trend analysis to be conducted, though in practice, the numbers are so small that the statistical reliability/ validity of such an exercise would be questionable.

Then finally, a summary table (Table 1) was produced which rank orders the 18 categories in terms of their aggregate frequencies (i.e. summed for the period 2000-2008).

RANK	ACCIDENT TYPE	NO. OF DEATHS 00-08	% OF TOTAL DEATHS 00-08
1	Fatal incidents involving ladders	72	11.27
2	Fatal incidents involving fragile roofing materials (excluding falls through joists)	61	9.5
3	Fatal incidents involving tube and fitting and system scaffold (excluding suspended scaffold)*	36	5.6
4	Fatal incidents involving pedestrians being struck by moving plant (excluding detachment of quick hitch buckets/ mechanical failure/ TTM incidents/ driverless incidents/ overturns and lifting failures)	30	4.69
5	Fatal incidents involving lifting failures (excluding crane collapse)	24	3.76
6	Falls through internal voids (excluding falls through joists)	22	3.4
7	Fatal incidents involving overturns of plant	21	3.29
8	Fatal incidents involving working in, on or adjacent to pre-weakened structures	20	3.13
9	Contact with overhead power lines	17	2.66
10	Fatal incidents involving asphyxiation/ fume poisoning	14	2.19
10	Fatal incidents involving tower/mobile scaffold (excluding tube and fitting and system scaffold)	14	2.19
11	Fatal incidents involving excavations	12	1.9
12	Fatal incidents involving falls from vehicles	6	0.94
13	Fatal incidents relating to not turning off before getting off	6	0.94
14	Fatal incidents involving quick-hitch failures	5	0.78
15	Fatal incidents involving falls from flat roofs (excluding falsework)	4	0.62
15	Fatal incidents involving wall underpinning/ walls being undermined	4	0.62
16	Fatal incidents involving falls from mezzanine floors	3	0.47

Table 1: Rank order of frequencies of fatal accident categories.

5.8 APPENDIX 8: REPORT OF FINDINGS FROM FEASIBILITY TESTING THE TOOLKIT WITH SMES.

See overleaf.

EXECUTIVE SUMMARY

Background

This piece of work follows on from an earlier Phase (Phase I) of a project concerned with establishing current practices within the UK construction sector in developing and applying behaviour change and worker engagement (BCWE) practices intended to improve health and safety performance. It was found that to improve health and safety practices across the industry, small to medium sized enterprises (SMEs) in the construction industry needed support in implementing BCWE initiatives. Phase II of the research was therefore commissioned by HSE to develop a toolkit for construction SMEs that would assist them in improving their health and safety performance. The toolkit is currently referred to as the 'People First Toolkit', which is under ongoing development.

Aims and Objectives

This report documents the final stage of Phase II, namely, feasibility testing carried out with six participating SMEs in order to determine whether the toolkit is suitable and practicable for use by its intended audience (i.e. construction SMEs).

Main Findings

Questionnaire responses from the six participating SMEs were subjected to thematic analysis. Overall, the toolkit was positively received and considered to be an effective tool to reduce risk-taking behaviour within the construction industry. A number of suggestions for improvement were made and these are discussed in detail throughout this report. Some of the suggested changes related to the presentation of the toolkit (e.g. preference for an electronic interactive version than hard copy), whilst other suggestions referred to improving the usability of certain elements of the toolkit (e.g. providing users of the Health and Safety Culture Maturity Measure with the ability to note their current position against their previous position).

Recommendations

Findings from the feasibility testing documented in this report have provided valuable information to finalise the development of the 'People First Toolkit'. A number of recommendations have emerged that will assist in the refinement and development of the toolkit content into an actual product during Phase III.

1 INTRODUCTION

This piece of work follows on from an earlier phase (Phase I) of a project concerned with establishing current practices within the UK construction sector in developing and applying behaviour change and worker engagement (BCWE) practices intended to improve health and safety performance¹². It was found that to improve health and safety practices across the industry, small to medium sized enterprises (SMEs) needed support in the construction industry implementing BCWE initiatives. Phase II of the research was therefore commissioned by HSE to develop a toolkit for construction SMEs that would assist them in improving their health and safety performance. The toolkit is currently referred to as the 'People First Toolkit', which is under ongoing development. This report documents the final stage of Phase II, namely, the feasibility testing carried out with six participating SMEs in order to determine whether the toolkit is suitable and practicable for use by its intended audience (i.e. SMEs in the construction industry).

¹² See Lunt, J., Bates, S., Bennett, V., & Hopkinson, J. (2008). *Behaviour Change and Worker Engagement Practices within the Construction Sector*. HSE Research Report 660.

2 METHOD

2.1 RECRUITMENT OF PARTICIPANTS

BCWE Forum¹³ members nominated suitable SME contacts and approached them at the start of Phase II to seek their participation in the project. Following this, the HSL project team contacted the eight willing SMEs to discuss the project in further detail. All eight SMEs agreed to assist HSL with two stages of the Phase II research. The first was to participate in a structured interview to ascertain their opinions of important SME construction site characteristics and risk taking behaviours that the toolkit should accommodate. The results of these case interviews are reported elsewhere¹⁴. The second stage was to provide the HSL research team with feedback on the feasibility of the toolkit once developed. Of the seven SMEs that participated in the structured interview and an eighth who provided an email response to interview questions, seven returned a Confidentiality Disclosure Agreement¹⁵ to HSL to enable their participation in the second stage. Out of the seven SMEs who were sent the toolkit to review, six completed the feasibility testing. Further details of the recruitment procedure and demographic information of participating SMEs can be found in a separate report¹⁶.

2.2 ALLOCATION OF TOOLKIT SECTIONS TO REVIEW

The content of the toolkit was designed to ensure that all the prerequisites necessary for permitting sustainable behaviour change identified in Phase I of the research were covered. This included: motivating management, providing assessment measures, guidance on integrating BCWE practices with the health and safety management system, advice on leadership skills, strategies for motivating the workforce, advice on how to instigate and sustain actual change over time. For each component a range of strategies, tools, techniques, information sheets and/or video footage recommendations were produced, the intention being that SMEs select those that best suit their business and workforce needs. Consequently, there was a large volume of material within the toolkit to be reviewed. In recognition of the likely time and business pressures facing participating construction SMEs, the HSL project team allocated specific sections of the toolkit for each SME to review and test.

Whilst it was considered appropriate to have each participating SME review and test only certain elements of the toolkit, three areas were considered to be fundamental to its use (i.e. a requirement for any SME manager using the toolkit to read or undertake). It was therefore pertinent to gather as much feedback on these areas as possible. As such, all seven companies were requested to review the following:

- How to Use this Toolkit.
- Section A: What's in it for my Business?

¹³ The BCWE Forum was set up between HSE and the Construction Sector to develop a cohesive and pragmatic approach to BCWE that will evolve through best practice and learning across industry with a view to change the way work activities are led, planned, procured and managed. The collective goal is to reduce incidents that result in harm and personal suffering.

¹⁴ Follow [this link](#).

¹⁵ Stating that HSL were providing the company with document(s) of a confidential nature for them to review. As part of this review they could not print, copy or distribute the supplied document(s) and on completion of the review all documentation should be returned to HSL.

¹⁶ Follow [this link](#).

- Rule of Thumb Health and Safety Culture Maturity Measure (HSCMM contained in Section B).

Each of the remaining sections was randomly allocated to two companies, with the exception of Section E (see Table 1). This method was adopted to overcome any issues with non-response by ensuring as much as possible that feedback would be received from at least one SME for each section of the toolkit, whilst keeping the number of sections for review to an absolute minimum (five in total for all but one SME who reviewed four sections).

Toolkit content:	Allocated to:	Reviewed by:
Section B: How do I assess how I am doing?	2 companies	2 companies
Section C: How do I make this fit with what I am already meant to do?	2 companies	2 companies
Section D: How should I and my managers lead this?	2 companies	2 companies
Section E: What's in it for my team?	1 company	1 company
Section F: How do I get my team to carry it out?	2 companies	1 company
Section G: How do I make this last?	2 companies	1 company

Table 1: Allocated toolkit sections to SMEs.

2.3 FEASIBILITY QUESTIONNAIRE

In order to assimilate feedback on the toolkit a brief questionnaire was developed. The questions were developed by the HSL project team and aimed to focus on issues of comprehensibility, usability and feasibility of the toolkit. The feasibility questionnaire varied slightly depending on which sections each participating SME was asked to review (an example copy can be found in Appendix one).

After reviewing their allocated sections, participants were asked to complete the feasibility questionnaire, answering all questions honestly and as fully as possible, giving reasons for their answers. For each section of the toolkit reviewed, participants were also requested to provide any suggestions for possible improvements. Whilst each participating SME had been allocated specific sections to review, they were encouraged to review the entire toolkit. As such, a final question addressed the opinions on any additional sections of the toolkit reviewed.

2.4 QUESTIONNAIRE ANALYSIS

To collate all the information from the completed questionnaires a data extraction spreadsheet was created using the following categories:

- Company name.

- How to use this toolkit.
- What's in it for my business?
- Rule of Thumb HSCMM.
- Toolkit content.
- Effectiveness of the toolkit.
- Additional information.

The spreadsheet was developed to allow participants' responses to be extracted verbatim. Consequently, some of the headings above were subdivided into the specific questions that appeared on the feasibility questionnaire. (See Appendix one on p119 for the specific questions that relate to each category above).

Information obtained from the completed questionnaires was then input into the spreadsheet and categorised according to relevant themes. The themes created were double checked by another member of the HSL project team to ensure consistency and reliability.

3 OVERALL RESULTS

The following section provides a detailed summary of the responses made by the six SMEs who completed the feasibility questionnaire.

The People First Toolkit contains information sheets, templates, training packs and policies, each of which is numbered (e.g. Information Sheet 1). Appendix two lists the titles of each.

All six of the companies answered questions relating to the following areas:

- How to use this toolkit.
- Section A: What's in it for my business?
- Rule of Thumb HSCMM (contained in Section B).

These results are presented first. For these three areas, participant's responses were grouped according to similar themes. Any differences of opinion are also highlighted together with suggestions for improvements. The suggestions for improvements are paraphrased from participants' comments.

3.1 COMPULSORY SECTIONS FOR REVIEW

3.1.1 HOW TO USE THIS TOOLKIT

Question: How clear and easy to understand did you find this section?

The companies generally found this section concise, logical and easy to understand. One company, however, found the section long-winded and repetitive at times. Nevertheless, the participant noted that this might be due to his recent completion of an MBA. One company explained that they liked the training sections, whilst another commented that supplying the toolkit in hard copy might seem daunting to many SMEs. It was also noted by another company that the clarity was lost by steps 1-8 (i.e. a flow chart detailing the step-by-step approach to using the toolkit) being spread out over three pages rather than one. Consequently, the company felt it was easier to read this section through once and then revisit it to choose the relevant steps and strategies.

Suggestions for improvements to increase the usability of the toolkit:

- The finished product needs to be available electronically. Hyperlinks could then be inserted to the relevant sections.
- Condense the literature; 'buy in' would be achieved when the toolkit is looked at (i.e. reduce the hard sell, as it is a distraction).
- Supplement with a timeline highlighting both the initial program and required subsequent revisits.
- Consider developing the toolkit as either an electronic issue or web-based tool where each step automatically takes you to next section/stage/action.
- Reformat the steps to be taken into a landscape format and set out as a checklist.

3.1.2 SECTION A: WHAT'S IN IT FOR MY BUSINESS?

Question: To what extent do you think this section will motivate SMEs to use the toolkit?

Whilst companies felt that the content of this section was good, generally they found the section quite lengthy. Some felt that this could hinder take up of the toolkit, giving the impression that it will be a time consuming process. It was felt that the wording could potentially be more 'punchy'.

One company noted that the tables detailing tips for managing expectations and getting quick wins were excellent and that the use of the business, legal and moral cases were well understood and would motivate SMEs. Another company also highlighted the usefulness of the toolkit in detailing the benefits of a BCWE process to managing directors. One company felt that the background information was extensive and may dilute the important message that the toolkit is trying to convey. One company noted that the tips for managing expectations were easy to understand.

One company felt that this section was targeted more appropriately at medium sized enterprises with existing, established health and safety management procedures and recording processes. For smaller organisations it appears to be too academic in terms of the complexity of some of the graphs showing potential business benefits accrued from implementing BCWE. In addition quoting relevant legislation in full could be a 'turn-off' for small organisations.

Suggestions for improvements to help motivate SMEs to use the toolkit:

- Be wary of using statistics to demonstrate financial benefits; case studies may be more effective. Telling SMEs about accident costs may not coincide with their own experiences.
- Many SME owners / health and safety managers / supervisors will not understand the term 'meta analysis'. It may be better given the target audience, to avoid such 'jargon'.
- Condense the literature; aim for 'brevity and clarity'. Simplify the text and graphs; consider clear concise bullet points.
- The paragraph on financial benefits states the potential for a massive reduction in health and safety costs but without indication of changes in level/volume of work being undertaken and hence no link to proportional reduction.
- One of the graphs is intended to show financial benefits but has no reference to actual money saved following the launch of behavioural safety programmes.
- In the graph showing health and safety scores plotted against commercial performance in construction projects, labels of best and worst do not appear to relate to the axis label of 'economic performance' as the data is ordered by health and safety audit scores.
- The statement said by the manager of a construction training organisation ("*Can the duty holder comfortably reconcile paying for their child's school fees when their workers are having accidents on their construction sites?*") is not helpful as it suggests safety is a matter of money and not culture as this toolbox is trying to achieve.
- Calculators being available on the HSE website would be helpful. Trying to do these calculations would put people off.

- Reference any background information outside the toolkit rather than in main body.

3.1.3 RULE OF THUMB HSCMM (CONTAINED IN SECTION B)

Comments on this section were collated as responses to several questions.

Question: How easy do you think the measure will be to complete?

The majority of the companies regarded the measure as either ‘easy’ or ‘very easy’ to complete. One company commented on the step-by-step approach, which was regarded as simple to follow, and the statements were considered to ‘*make it easy for companies to judge where (they) are at*’. One company regarded the measure as an ‘*excellent benchmark tool with linked solutions*’.

Whilst the companies generally felt that the measure was easy to use, two companies questioned the utility of Side Two of the measure (which provides full details of current stage of safety culture maturity). It was suggested that as a business may be at different levels in different areas, this might not add value.

One company commented that having all the instructions up front meant that ‘*some of the game is given away*’. It was felt that by having separate instructions for each page would ensure the honesty/integrity of the scoring. Additionally, one company highlighted a need for the measure to include an explanation of terms used.

Question: How easy do you think the results will be to interpret?

In general the companies’ stated the measure would be easy to interpret. One company felt the results would be ‘*largely self-explanatory*’. As a caveat, one company commented that easy interpretation would depend on users being familiar with the terminology and matrix type evaluation. Another company commented that reference to a target or benchmark would be useful.

One company suggested that when using the measure the need to flip from Side One (i.e. deciding on the organisation’s current level of safety culture maturity) to Side Three (identifying specific solutions) to Side Four (identifying next steps) was potentially confusing for users. Additionally, it was highlighted that as many of the observations will be subjective by nature, the measure will be reliant on the consistency of the auditors, likely to be established through actual use.

Question: How effective do you think the Rule of Thumb Measure will be in guiding appropriate interventions?

Responses to this question were mixed. One company felt that the measure would be very effective, producing clear, concise ideas on how to progress. Another company also felt that the measure would be an effective tool, but highlighted the need for recipients to be trained to appreciate the comments generated by the measure.

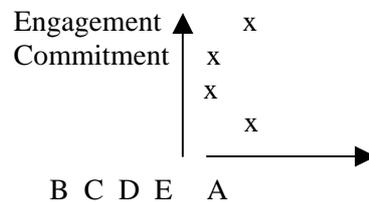
For one company, effectiveness was an area where the measure was felt to ‘*fall down a little*’. It was suggested that taken in isolation, the measure would fail to guide the participant to improvement. Another company suggested that the information within the measure was very generic. Additionally, one company stated a need for the measure to confirm whether focus should be on bringing all building blocks to the same level initially (e.g. to all B’s – ‘getting

going') or whether companies should direct effort at advancing all building blocks at once, regardless of their relative starting positions.

Suggestions for improvements to the 'Rule of Thumb' measure:

Completing the measure

- The current layout hinders completion, which risks losing the very people whom most need targeting (i.e. those who are likely to do very little regarding health and safety). It may be more effective to place instructions at the top of each sheet to which they relate, rather than all at the start of the document.
- The associated literature needs to be condensed.
- Replace Side Two with a graph/grid for the results to be plotted on to highlight initial focus areas. For example:



- At the start of the section provide clear definitions of the terminology used, such as logging and heading evaluation. Smaller organisations may find it difficult to measure and record worker engagement, as this is likely to be on a daily basis and face to face on site.
- It may be more effective to allocate scores to each answer and once added up this could give the user their starting block (i.e. mostly A's – 'starting blocks' could equal a score of 6-10).

Interpreting the results

- Be more specific on observation criteria with point systems for comparison.
- Provide the user with the ability to note their current position against their previous result. This may assist in demonstrating the benefit of their efforts.
- 'Ready reckoners' would be useful to give an instant guide to how the user is scoring.
- Consideration should be given to developing an electronic input system where outcomes are automatic.
- It may be more effective to assign numbers to each answer on Side One, eliminating the need for Side Three.

Guiding interventions

- Provide instructions on defining short and long-term goals. Whilst Side Four (identifying next steps) identifies the company's short-term goal, ideally a structured plan should be devised to move the company towards 'running/sprinting' (i.e. the latter building block where safety is embedded within the organisation's culture).
- Use video based training.
- Include completed typical examples of the templates to assist SMEs in understanding the content and goals of the measure.

3.2 REMAINING SECTIONS OF THE TOOLKIT (SECTIONS B TO G)

The companies involved were given different sections of the toolkit to review (see Section 2.2 of this report). For each of the following sections, participant's responses have been grouped according to similar themes. Any differences of opinion are highlighted together with suggestions for improvements. For those participants who reviewed the entire toolkit, additional comments have been integrated into the relevant sections.

3.2.1 Section B: How do I assess how I am doing?

Information sheets

Participants were asked if the information sheets provided the correct level of information on the specified topic. (See Appendix two for further details on information sheets).

Three companies reviewed the information sheets in Section B. Overall, companies were happy with them. Two companies commented specifically on Information Sheet 1, finding it to contain too much information (long-winded) and difficult to follow. This needs to be condensed into a more manageable size.

Templates

Participants were asked whether the templates provided could be used and adapted to suit their needs. (See Appendix two for further details on templates).

Two companies commented on the templates provided in Section B. One company provided a general comment that there was a good selection of templates for use. The second company commented positively on Templates 1B and 1C, noting that they stimulate thought that are likely to provoke change in the quality of feedback. However, with regards to Template 1C, the company felt that instruction was lacking in how to undertake the observation without influencing the behaviour being observed. They felt that this was a serious drawback. The company stated that they already have a method of measuring accident and near miss statistics (as noted in Template 1A) but will look to include ill-health measures. However, they felt that Template 1A did not adequately indicate whether the ill-health measures should be solely work related and how a judgement should be made concerning the recording of an individual's lost time.

3.2.2 Section C: How do I make this fit with what I am already doing?

Information sheets

Two companies reviewed Information Sheets 6, 7 and 8 (see Appendix two for specific details on information sheets). They generally felt that the level of information provided was correct and useful. One company however, believed that Information Sheet 7 provided too much information and should be cross-referenced with other guidance.

Templates

Templates 7A-E were evaluated by two companies. They stated that they could adapt them to suit their needs and may also add parts of these templates to their existing documentation. Template 7E was of particular note to one company who felt that the use of a flow diagram was helpful. The 40 questions were also felt to be useful prompts for the thought process of supervisors.

Health and safety policy

Participants were asked whether the example health and safety policy provided in the toolkit could be used and adapted to suit their needs. Two of the companies considered this to be the case. A second company felt that the policy included some useful wordings and directions.

3.2.3 Section D: How should I and my managers lead this?

Information sheets

Three companies commented on the information sheets provided in Section D of the toolkit. One company felt that they provided the correct level of information on the topic and should be made as simple as possible. Two companies commented specifically on Information Sheet 9, both arguing that it was too long winded and perhaps should be condensed into smaller, '*bite size*' chunks. One of the companies, however, stated that they found it insightful and informative. This company also commented on the other information sheets stating that they provide the correct level of information, are concise and of an appropriate length. They felt that this approach should be taken with Information Sheets 1 and 9.

No specific comments about the remaining Information Sheets (10-14) were made by any of the companies. It is assumed, therefore, that they were content with these.

Templates

One company commented on the templates provided in Section D of the toolkit. Template 11A was regarded as being too long, despite the content being appropriate. It was noted that usually induction forms do not exceed one side of A4 due to the filing required and staff turnover. The company explained that the intended audience for this template will be easily put off completing the form and therefore its presentation is paramount (e.g. reduce the font size, white space and any unnecessary content to reduce the length of the template). The content of Template 12A was felt to be good yet again comments were made that the length should be reduced to one side of A4. Template 13A was considered a more appropriate length and 13B was reportedly excellent and the company noted that they would use this in future evaluations.

Training packs

Participants were asked whether the training packs would assist them and their supervisors to deliver training.

Overall, the four companies that reviewed the training packs within the toolkit provided positive feedback. Companies commented that the packs would assist them in delivering training and found the slides to be useful and essential to the adoption of the toolkit. Two companies commented specifically on Training Pack 1. They stated that it was very good and would assist them greatly. One company commented specifically on Training Pack 2, noting that it is impractical to insist on supply chain personnel receiving a daily briefing. It was recommended that this be reviewed. However, they found the SLAM (Stop, Look, Assess and Manage) concept very helpful. One company noted Training Pack 3 was very good and is an area that is often ignored with foremen being given toolbox talks to deliver without the necessary training.

3.2.4 Section E: What's in it for my team?

Information sheets

One company reviewed this section of the toolkit. They stated that Information Sheets 15 and 16 provided a good level of information.

3.2.5 Section F: How do I get my team to carry it out?

Information sheets

One company reviewed this section of the toolkit. They commented that Information Sheets 17-22 were clear and relatively easy to understand yet Information Sheet 23 lacked clarity. The company stated that it took some time to understand what a behaviour modification programme was and how it should be implemented. They noted that for the majority of SMEs this would be a new approach that currently uses too much academic vocabulary.

Templates

One company reviewed Templates 23 A-D. They concluded that once the basic principles were understood, they were able to adapt and implement them effectively.

3.2.6 Section G: How do I make this last?

One company was asked to review Section G of the toolkit. As they provided no comments it is assumed that the information sheets provided the correct level of information and that the templates could be readily used and adapted to suit their needs.

3.2.7 Suggestions for Improvement for Sections B - G

Participants were given the opportunity to provide suggestions as to how the toolkit could be improved to ensure usability and appropriate content. Their suggestions have been paraphrased below.

Information sheets

- Reduce Information Sheet 1 down to three sides of A4 or break it up into different sections.
- Attempt to reduce all information sheets to one page, cross-referencing other documents where necessary.
- A bullet point approach could be used for Information Sheet 23 and the addition of a guidance column would make this clearer. A set of completed 'model' templates with derived conclusions would be helpful.
- For Information Sheet 16 smaller SMEs are unlikely to have a facilitator but this provides a good level of information for bigger SMEs.

Templates

- Provide templates in an electronic format, such as Microsoft Word, to allow for easy adaptation.
- Reconfigure Template 7E so that it could be reviewed daily (i.e. the use of seven tick boxes for each day of the week) to avoid supervisors being inundated with paperwork.
- For Template 13A, portrait layout would allow more room for signatures and there is no space for operatives to print their name (important when claiming CITB Grant funding for Tool Box Talks).
- The length of Templates 11A and 12A need to be reduced, as typical induction checklists do not exceed one side of A4.
- Small organisations will find it difficult to implement Templates 23A-D due to the time constraints on senior managers.

Training Packs

- Provide training packs electronically for branding / adaptation.
- The suggested DVD publication (for the first activity) with a website link would be an excellent idea for Training Pack 1.
- It may be more useful / practical to issue drivers and other supply chain personnel with a written briefing at the gate (e.g. a white board/poster with today's activities/hazards or a flier). A video (DVD) package may also help.

Health and safety policy

Three companies reviewed the health and safety policy and made no suggestions for improvement.

3.3 EFFECTIVENESS OF TOOLKIT

Questions surrounding the effectiveness of the toolkit were included in the feasibility questionnaire and asked to all participating SMEs. Specifically these addressed its usability, effectiveness at reducing risk-taking behaviour within construction SMEs, barriers that might prevent its use, and finally, other information they would like to see added. Responses have been grouped according to similar themes. Any differences are highlighted below together with any suggestions for improvement. The suggestions for improvement are paraphrased from participants' comments.

3.3.1 Usability of the toolkit within the construction industry

Question: Do you think that a) you will use the toolkit and b) that other SMEs in the construction industry will use the toolkit?

All of the companies stated that they would use the toolkit themselves, although one did note that they would only use parts of it. There was concern, however, from some SMEs over the extent that the toolkit would be used by other SMEs. Their main concern was that the format and length of the toolkit would reduce uptake. One company felt that this could be overcome by having the toolkit in an electronic format so that users could be taken through the process step by step. There was some argument for making the toolkit simpler, with a clearer introduction. Conversely, some companies commented that the toolkit would provide them with an opportunity to review and refresh their health and safety and supplement their own in-house training.

Suggestions for improvement to encourage usage:

- Improving the toolkit's usability could be achieved by developing it into a user-friendly tool backed up with workshops to assist the understanding and implementation.
- Condense the content to encourage take up.
- Structure the toolkit as a CD Rom that completes as the user goes through it and allows the whole pack to be printed out at the end.

3.3.2 Effectiveness in reducing risk-taking behaviour

Question: How effective do you think the toolkit will be in reducing risk-taking behaviour within construction SMEs?

Responses were quite tentative with the general consensus being that the toolkit could potentially reduce risk-taking behaviour, yet whether SMEs have the ability and motivation to implement it correctly remains to be seen. If applied correctly, companies noted that it could assist in improving behaviour. One company felt that the toolkit would only go so far in reducing risk-taking behaviour and would need a campaign behind it to make a more noticeable improvement. Finally, one company stated that the toolkit is an excellent method to reinforce management commitment and encourage active involvement from supervisory staff.

Suggestions for improvements to reduce risk-taking behaviour:

- If properly developed and with adequate training assistance (i.e. structured workshops) being led by the right organisation, this toolkit could prove successful.
- Often risk is well managed for planned activities, but not for unplanned activities.

3.3.3 Barriers to prevent toolkit use

Question: Are there any reasons that you think might prevent construction SMEs from using the toolkit?

All of the companies who returned their questionnaires commented on the barriers that they felt might prevent construction SMEs from using the toolkit. The overwhelming barrier identified by the companies related to the size of the toolkit. Companies felt that it was too large and unwieldy in its current format. They felt that this might deter other construction SMEs from using it. However, some commented that companies might perceive it to be complicated and lengthy when the reality is different.

One comment indicated that too much statistical information gathering might deter some companies from using the toolkit. A final barrier suggested was that there might be an initial lack of understanding of the purpose and aims of the toolkit.

Suggestions for improvement to remove barriers to uptake:

- Condense the content.
- Produce the toolkit with dividers or page tabs to allow easier location of information sheets, etc., making it more user friendly.
- Create a more interactive approach. A software-based tool supported with training workshops would probably be more successful than a '*thick manual*' approach.
- Structure the toolkit into a CD Rom.

3.3.4 Additions to the toolkit

Question: Is there any other information you would like to see included in the toolkit?

Three companies suggested that the following additional information be included in the toolkit:

- Strategies to encourage an informal approach to Facilitated Meeting (FM) sessions within the training packs. Better use could be made of the 'ice breaker' activity detailed in Training Pack 1. This could be carried out a week prior to the FM in order to get the 'best' out of people.
- An interactive software based tool that automatically leads users through the stages.
- Completed examples of templates with typical / model responses.
- Short introductions for explaining the toolkit to different levels of staff (e.g. directors, managers and site operatives). This could aid the roll out of the toolkit.

In addition to the above the suggestion was made by the three companies to launch the toolkit with training workshops to assist SMEs in implementation. This would enable SMEs to share knowledge and best practice techniques.

3.4 ADDITIONAL INFORMATION

Participants were given the opportunity to provide any additional comments about the toolkit. One company noted that the title of the toolkit needed further consideration, as it does not include the essential words 'behaviour' and 'worker engagement'. They felt that the word 'change' is derogatory as it suggests none of these techniques are currently being used. They suggested that the word 'focus' is included within the title.

4 SUMMARY OF KEY FINDINGS

Key findings identified from the analysis of the questionnaire responses are summarised below.

4.1 HOW TO USE THIS TOOLKIT

This section was found to be concise, logical and easy to understand. It was felt, however, that the literature should be condensed in order to promote ‘*buy-in*’ and use. Additionally, supplying the toolkit in hard copy might seem daunting to many SMEs. An electronic version (e.g. an electronic, web based tool) would encourage uptake.

4.2 SECTION A: WHAT’S IN IT FOR MY BUSINESS?

Whilst companies felt that this section was good, generally it was considered to be quite lengthy. It was noted that the background information was extensive and may dilute the important message that the toolkit is trying to convey. Some felt that this could hinder take up of the toolkit, giving the impression that it will be a time consuming process.

It was noted, however, that the use of the business, legal and moral cases were well understood and would motivate SMEs. Also highlighted was the usefulness of the toolkit in detailing the benefits of such a process to managing directors. It was suggested that this section currently targeted medium sized enterprises more than small enterprises with existing, established health and safety management procedures and recording processes.

4.3 RULE OF THUMB HSCMM (CONTAINED IN SECTION B OF THE TOOLKIT)

The majority of the companies regarded the measure as easy to complete. The step-by-step approach was well received and the statements were considered to ‘*make it easy for companies to judge where (they) are at*’. It was suggested, however, that Side Two of the measure (which provides full details of current stage of safety culture maturity) might not add value as a business may be at different levels in different areas. Additionally, it was felt that having separate instructions for each page would ensure the honesty/integrity of the scoring. A need for the measure to include an explanation of the terms used was also highlighted.

In general it was felt that the measure would be easy to interpret by SMEs. As a caveat, one company commented that easy interpretation would depend on users being familiar with the terminology and matrix type evaluation. Providing reference to a target or benchmark was suggested to be useful. Additionally, it was highlighted that as many of the observations will be subjective by nature, the measure will be reliant on the consistency of the auditors.

With regard to how effective the measure would be in guiding appropriate interventions, responses were mixed. Some companies considered the measure to be an effective tool producing clear, concise ideas on how to progress. However, a need for recipients to be trained to appreciate the comments generated by the measure was highlighted. For other companies, effectiveness was less certain. It was suggested that taken in isolation, the measure would fail to guide the participant to improvement, and the information within the measure was considered very generic. Clarification was also sought on whether the focus should be on bringing all

building blocks to the same level initially or whether effort should be made to advancing all building blocks at once, regardless of their relative scores/positions.

4.4 SECTIONS B-G OF THE TOOLKIT

Section B: How do I assess how I am doing?

Information Sheet 1 was found to contain too much information and was difficult to follow.

In general SMEs commented that there was a good selection of templates for use. Templates 1B and 1C received positive comment. For Template 1C, however, instruction was lacking in how to undertake the observation without influencing the behaviour being observed. Clarification on whether ill-health measures should be solely work related and how a judgement should be made concerning recording of an individual's lost time was also requested.

Section C: How do I make this fit with what I am already doing?

The level of information provided in Information Sheets, 6, 7 and 8 was felt to be correct and useful. One company felt, however, that Information Sheet 7 provided too much information and should be cross-referenced with other guidance.

The companies generally felt that they could adapt Templates 7A-E to suit their needs and may also add parts of these templates to their existing documentation. The companies also felt that the example health and safety policy could be adapted and used to suit their needs.

Section D: How should I and my managers lead this?

In general the information sheets were felt to provide the correct level of information, were concise and of appropriate length. Information Sheet 9 was considered to be insightful and informative but should be condensed into smaller '*bite size*' chunks.

Despite the content being viewed as appropriate, Templates 11A and 12A were regarded as too long. The suggestion was made to reduce this to one side of A4. Template 13A was considered a more appropriate length and 13B was reportedly excellent by one company who commented that they would use this in future evaluations.

The general consensus was that the training packs would assist companies in delivering training. The slides were found to be useful and essential to the adoption of the toolkit. One criticism related to Training Pack 2. It was considered impractical to insist on supply chain personnel receiving a daily briefing and recommended that this be reviewed. However, the SLAM concept was found to be helpful.

Section E: What's in it for my team?

One company reviewed this section of the toolkit. They stated that Information Sheets 15 and 16 provided a good level of information.

Section F: How do I get my team to carry it out?

Information Sheets 17-22 were considered clear and relatively easy to understand. However, Information Sheet 23 was thought to lack clarity with the company noting that it took some time to understand what a behaviour modification programme was and how it should be implemented. They noted that for the majority of SMEs this would be a new and detailed approach.

For Templates 23 A-D it was considered that once the basic principles were understood, it would be possible for companies to adapt and implement them effectively.

Section G: How do I make this last?

One company was asked to review Section G of the toolkit. As they provided no comments it is assumed that the information sheets provided the correct level of information and the templates could be readily used and adapted to suit their needs.

4.5 EFFECTIVENESS OF TOOLKIT

When asked whether they felt that the toolkit would be used by construction SMEs, all six of the companies stated that they would use the toolkit themselves. However, there was some concern over the extent that the toolkit would be used by other SMEs. Their main concern was that the format and length of the toolkit would reduce uptake, yet it was felt this could be overcome by having the toolkit in an electronic format so that users could be taken through the process step by step. Additionally, some companies commented that the toolkit would provide them with an opportunity to review and refresh their health and safety and supplement their own in-house training.

Regarding the effectiveness of the toolkit in reducing risk-taking behaviour, the general consensus was that this could be achieved. Whether other SMEs have the ability and motivation to implement the toolkit correctly was, however, questionable. If applied correctly, possibly with a campaign or training workshop supporting it, companies noted that it could assist in improving behaviour. One company stated that the toolkit is an excellent method to reinforce management commitment and encourage active involvement from supervisory staff.

Potential barriers to prevent wider toolkit uptake were suggested. The overwhelming barrier identified related to the size of the toolkit. Companies felt that it was too large and unwieldy in its current format, which may deter other construction SMEs from using it. One comment indicated that too much statistical information gathering might also deter some SMEs from utilising the toolkit. A final barrier suggested was that SMEs might not initially grasp the aims and purpose of the toolkit.

5 KEY RECOMMENDATIONS FOR IMPROVEMENTS TO THE TOOLKIT

Companies were asked to suggest improvements to the toolkit. A summary of the key suggested improvements is provided below.

5.1 HOW TO USE THIS TOOLKIT

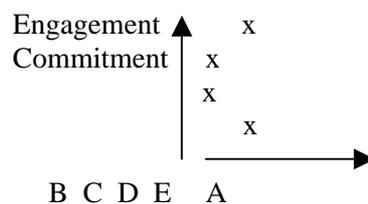
- Condense the literature to promote user '*buy in*' when the toolkit is looked at.
- Consider developing the toolkit as either an electronic issue or web-based tool where each step automatically takes the user to the next section/stage/action.

5.2 SECTION A: WHAT'S IN IT FOR MY BUSINESS?

- Be wary of using statistics; case studies may be more effective. Telling SMEs about accident costs may not coincide with their own experiences.
- It may be better, given the target audience, to avoid 'jargon' (e.g. meta analysis).
- Condense the literature to achieve 'brevity and clarity'.
- Calculators on the HSE website would be helpful.

5.3 RULE OF THUMB HSCMM

- The current layout hinders completion, which risks losing the very people whom most need targeting (i.e. those who are likely to do very little regarding health and safety). It may be more effective to place instructions at the top of each sheet to which they relate rather than all at the start of the document.
- The associated literature needs to be condensed.
- Replace Side Two with a graph/grid for the results to be plotted on to highlight easily initial focus areas. For example:



- It may be more effective to allocate scores to each answer and once added up this could give the user their starting block (e.g. mostly A's could equal a score of 6-10).

- Providing the user with the ability to note their current position against their previous result may assist in demonstrating the benefit of their efforts.
- ‘Ready reckoners’ would be useful to give an instant guide to how you are scoring.
- Consideration should be given to developing an electronic input system where outcomes are automatic.
- Provide instructions on defining short and long-term goals. Whilst Side Three (‘Identify Your Next Steps’) identifies the company’s short-term goal, ideally a structured plan should be devised to move the company towards ‘running/sprinting’ (i.e. latter stages).
- Completed typical examples of the templates would assist SMEs in understanding the content and goals of the section.

5.4 TOOLKIT CONTENT

Information sheets

- Attempt to reduce all information sheets onto one page and cross-reference to other documents where relevant. In particular Information Sheets 1, 7 and 9 should be condensed where possible.
- A bullet point approach could be used for Information Sheet 23 and the addition of a guidance column would make this clearer. A set of completed ‘model’ templates with derived conclusions would be helpful.

Templates

- Provide templates in an electronic format, such as Microsoft Word, to allow for easy adaptation.
- Reconfigure Template 7E so that it could be reviewed daily (i.e. the use of seven tick boxes to represent each day of the week) to avoid supervisors being inundated with paperwork.
- The lengths of Templates 11A and 12A need to be reduced, as typical induction checklists do not exceed one side of A4.

Training Packs

- Provide training packs electronically for branding / adaptation.
- The suggested DVD publication for the first activity in Training Pack 1 with a website link would be an excellent idea.
- It may be more useful / practical to issue drivers and other supply chain personnel with a written briefing at the gate (e.g. a white board/poster with today’s activities/hazards or a flier).

5.5 EFFECTIVENESS OF TOOLKIT

- Develop the content into a user-friendly tool supported with workshops to assist understanding and implementation.
- Condense the content to encourage take up.
- Structure as a CD Rom that completes along the way and allows a printout of the whole pack at the end.
- Provide adequate training assistance (i.e. structured workshops) led by the right organisation to maximise success of the toolkit.
- Produce the toolkit with dividers or page tabs to allow easier location of information sheets, etc., making it user-friendlier.
- Create a more interactive approach (i.e. a software-based tool) supported with training workshops rather than a '*thick manual*' approach.

5.6 SUGGESTED ADDITIONS

- Strategies to encourage an informal approach to Facilitated Meetings (FM).
- Completed examples of templates with typical / model responses.
- Launch the toolkit with training workshops to assist SMEs in implementation and enable the sharing of knowledge and best practice techniques.
- Short introductions for explaining the toolkit to different levels of staff (e.g. directors, managers and site operatives). This could work to aid the roll out of the toolkit.

6 CONCLUSIONS AND NEXT STEPS

This report detailed the findings from a short feasibility study of the People First Toolkit. Overall, the toolkit was positively received and considered to be an effective tool in reducing risk-taking behaviour within the construction industry. However, the six participating SMEs made a number of suggested improvements as detailed in this report.

The HSL project team met to consider the findings from the feasibility study and these were discussed in detail. As some of the comments reflected only surface changes to the content of the toolkit, it was decided that it was appropriate to make these adjustments without further consultation with the BCWE Forum / Project steering group. The following changes were made:

- Any jargon was removed from the toolkit.
- Additional instructions were added to the Rule of Thumb HSCMM to explain the setting of short and long-term targets.
- Template 7E was adjusted to include a tick box format that would facilitate daily use.
- Template 12A was reduced in length to one side. Template 11A was not altered due to concerns about reducing the comprehensiveness of the induction checklist. Furthermore, reducing the length of this template would not allow sufficient space for user notes.

Comments made about condensing the literature to promote user buy-in relate to the 'Introduction to the People First Toolkit' section at the start of the toolkit. This section, however, will not be incorporated into the finished product. The introduction was incorporated at this stage for reporting purposes only and not intended as a section of the toolkit once developed into a product. A consideration in Phase III therefore concerns insertion of a short introduction explaining the toolkit, tailored to different levels of staff as suggested by SMEs during the feasibility testing.

HSL Project Team Recommendations

Based upon the feedback from the six companies, the HSL project team arrived at the following recommendations regarding the toolkit delivery and further research. These are as follows:

- We agree with the companies' recommendations regarding the use of an electronic, web-based media to make navigation of the toolkit easier and user-friendlier. This may also increase and encourage uptake.
- We agree with companies' recommendations to launch and support continued use of the toolkit with training workshops, which could be delivered by HSL to assist SMEs with implementation.
- We recommend that prior to making the Rule of Thumb HSCMM available to the construction industry, a more robust evaluation be conducted. This evaluation should incorporate reliability and validity checks.
- We recommend supporting the launch of the toolkit with an HSE campaign.

7 APPENDICES

APPENDIX ONE: PEOPLE FIRST TOOLKIT EVALUATION QUESTIONNAIRE

Instructions - Please review the following areas of the toolkit:

- **How to use this toolkit**
- **What's in it for my business? (Section A)**
- **Rule of thumb measure (contained in Section B)**
- **Section B - How do I assess how I am doing?**
- **Section D - How should I and my managers lead this?**

After reviewing the above areas please answer Questions 1 to 13. Please answer all questions honestly and as fully as possible, giving reasons for your answer. Feel free to use additional space if required.

If you have chosen to answer the entire toolkit please also answer Question 14.

How to use this toolkit

Q1 How clear and easy to understand did you find this section?

Any suggestions for possible improvements?.....

What's in it for my business? (Contained in Section A)

Q2 To what extent do you think this section will motivate SMEs to use the toolkit?

Any suggestions for possible improvements?

Rule of Thumb Measure (contained in Section B)

Q3 How easy do you think the measure will be to complete?

Any suggestions for possible improvements?

Q4 How easy do you think the results will be to interpret?

Any suggestions for possible improvements?

Q5 How effective do you think the Rule of Thumb measure will be in guiding appropriate interventions?

Any suggestions for possible improvements?

Toolkit Content

(For Questions 6-9 please answer the questions that are relevant to the sections you have reviewed)

Q6 Information Sheets: Do you think the Information Sheets provide the correct level of information on the topic? (Please note down the information sheet numbers that you refer to e.g. 'Information Sheet 9')

Any suggestions for possible improvements?

Q7 Templates: Can the templates be adapted and used to suit your needs? (Please note down the template numbers that you refer to e.g. 'Template A')

Any suggestions for possible improvements?

Q8 Training Packs (Section D only): Would the Training Packs assist you and your supervisors to deliver training? (Please note down the number of the training packs that you refer to e.g. 'Training Pack 1')

Any suggestions for possible improvements?

Q9 Example Health and Safety Policy (Section C only): Could the example Health and Safety Policy be adapted and used to suit your needs?

Any suggestions for possible improvements?

Effectiveness of Toolkit

Q10 In your opinion do you think that (a) you will use the toolkit and (b) that other SMEs in the construction industry will use the toolkit?

Any suggestions for possible improvements?

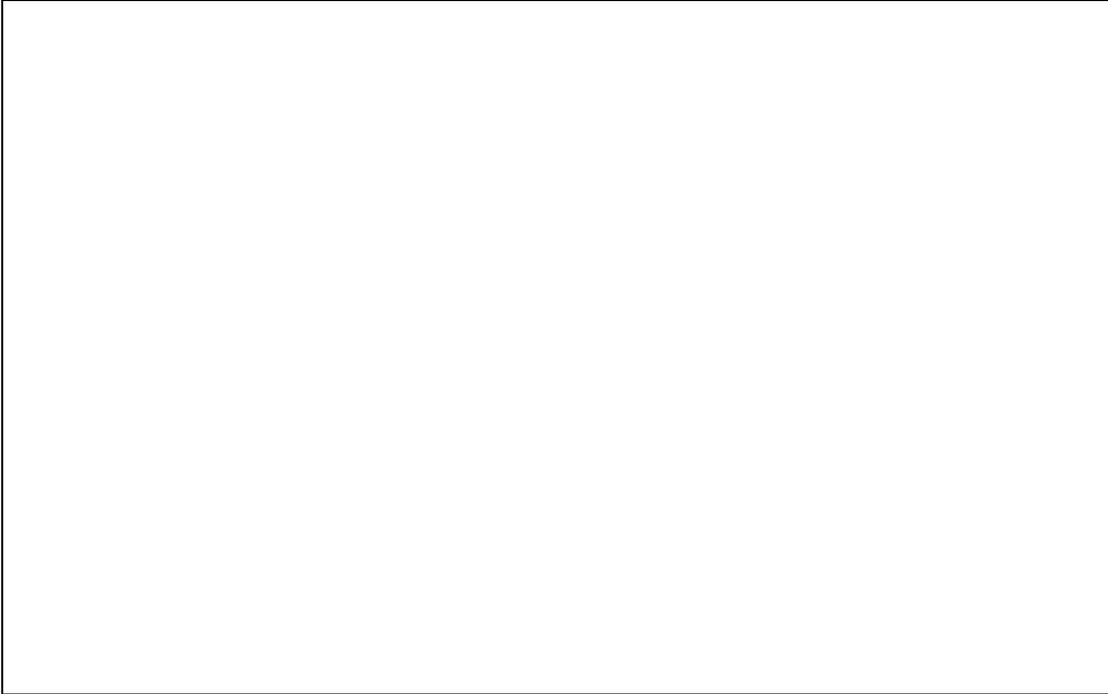
Q11 How effective do you think the toolkit will be in reducing risk-taking behaviour within construction SMEs?

Any suggestions for possible improvements?

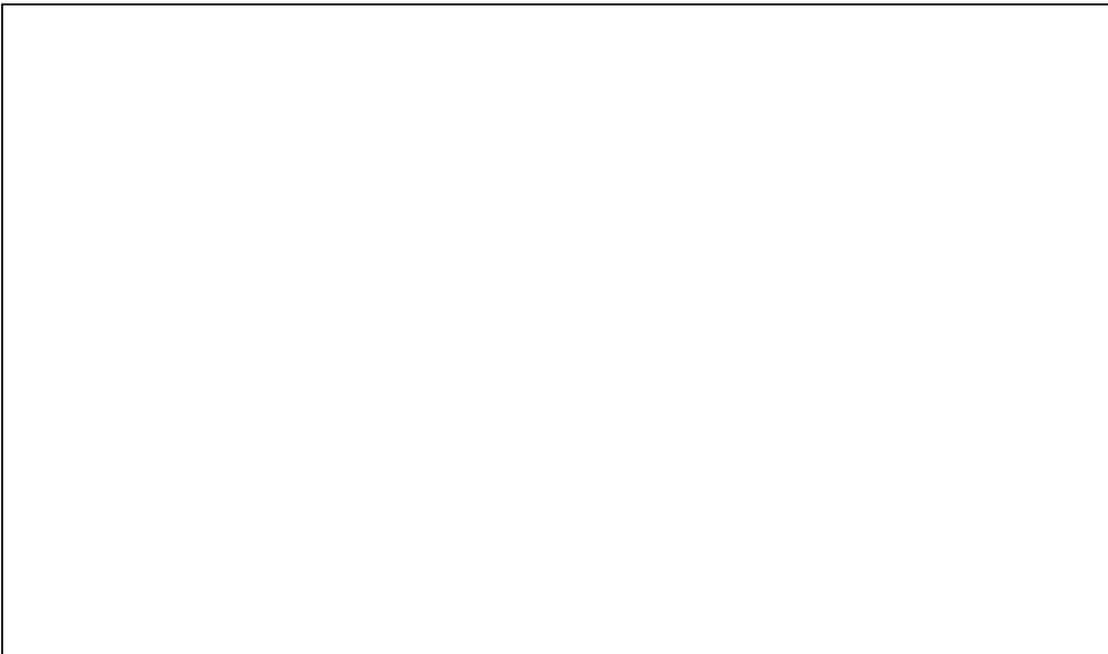
Q12 Are there any reasons that you think might prevent construction SMEs from using the toolkit?

Any suggestions for possible improvements?

Q13 Is there any other information/advice that you would like to see included in the toolkit? Please explain what additional features (if any) you would like to see included.



Q14 If you have reviewed the entire toolkit please use the space below to make any additional comments. Please indicate which section, information sheets and templates that your comments relate to.



***Thank you for your taking the time to review the toolkit and answer these questions.
Please use the continuation sheet for any additional comments.***

Continuation Sheet

APPENDIX TWO: CONTENT OF PEOPLE FIRST TOOLKIT

How to use this toolkit

Section A: What's in it for my business?

Section B: How do I assess how I am doing?

Information Sheets:

1: Evaluating your behaviour change worker engagement (BCWE) programme: guidance for small construction sites.

1a: Rule of Thumb Health and Safety Maturity Measure.

2: Human failure: why people make mistakes.

3: Acting on worker engagement (AWE).

4: Five Why's Analysis.

5: 'ABC' Analysis.

Templates:

1a: Recording accident, ill health and near miss statistics.

1b: Criteria for assessing the quality of worker engagement.

1c: Behavioural observation audit form.

3a: Acting on Engagement – question prompts.

3b: Acting on engagement summary sheet.

Section C: How do I make this fit with what I am already meant to be doing?

Information Sheets:

6: Health and Safety policy statement.

7: Engaging your workers in risk assessment.

8: Hierarchy of risk controls.

Templates:

7a: Engaging workers in hazard spotting.

7b: Task Analysis.

7c: Engaging workers in assessing risks.

7d: Engaging workers in action.

7e: Task assessment card for supervisors.

Section D: How should I and my managers lead this?

Information Sheets:

9: Facilitator guidance to accompany Training Pack 1.

10: Effective communication skills.

11: Effective communication for inductions.

12: Effective communications for safety briefings.

- 13: Effective communications at toolbox talks.
- 14: Feedback skills.

Templates:

- 11a: Health and Safety induction checklist.
- 12a: Safety briefing template.
- 13a: Tool Box Talks.
- 13b: Tool Box Talk evaluation form.

Training Packs:

- 1: Leadership training for managers and supervisors.
- 2: Guidance on delivering safety briefings.
- 3: Delivering Tool Box Talks: a guide for supervisors and managers.

Section E: What's in it for my team?

Information Sheets:

- 15: Incentives and rewards for safe behaviours.
- 16: Improving situational awareness.

Section F: How do I get my team to carry it out?

Information Sheets:

- 17: Competencies.
- 18: How to receive feedback as part of the worker engagement process.
- 19: How to be assertive as part of the worker engagement process.
- 20: Prompting safe behaviour at the point of use.
- 21: How to produce an action plan.
- 22: How to successfully set goals or objectives.
- 23: Using a behavioural modification (B.MOD) programme.

Templates:

- 23a: Behaviour observation measure for managers.
- 23b: Behaviour observation measure for operatives.
- 23c: Example observation strategy form.
- 23d: Certificate for rewarding good health and safety practice.

Section G: How do I make this last?

Information Sheets:

- 24: Maintaining health and safety standards through the life of a contract.
- 25: How to do a behavioural gap analysis.
- 26: Motivating the workforce to behave safely.

Development of the people first toolkit for construction small and medium sized enterprises

This research builds on initial work (now published in HSE's RR series as RR660) conducted within the construction sector to investigate behaviour change and worker engagement (BCWE) practices employed by Principal Contractors and Consultants belonging to a BCWE Forum set up by the Health and Safety Executive (HSE) and the construction industry. This report summarises Phase II of this research, in which the findings from the initial phase were used to inform the development of a toolkit specifically aimed to equip small and medium sized enterprises (SMEs with between 11-250 directly employed or subcontracted staff) in the construction industry with the skills to implement BCWE practices themselves. The performance toolkit developed, which includes a Health and Safety Culture Maturity Measure (HSCMM), has been translated into a final product during Phase III of this research - The Leadership and Worker Engagement (LWE) toolkit for small and medium enterprises in construction - and this has already been published as RR880.

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