Evaluating your safety culture and climate: a guide for the construction industry

A guide to help you identify strengths and opportunities within your organisation’s safety culture through structured and practical assessment techniques.

A five-step process:

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Each step in this guide is linked to a range of tools and other resources to assist you to undertake an effective Safety Leadership Challenge in your organisation.
Step 1: Understand the framework

The RMIT construction safety culture framework consists of nine key dimensions.

Safety culture can be defined as the shared beliefs and assumptions that workers hold in an organisation (around health and safety), that interact with practices, processes, and systems, to produce observable behaviour\(^1\). Given it can be difficult to measure and change shared beliefs and assumptions directly, a better approach is to understand how effectively the organisation’s practices, processes, and systems have been implemented. This information can then be used to redesign or re-implement practices, processes, and systems in ways that will contribute to more helpful shared beliefs and assumptions over time.

Maturity of your safety culture

RMIT University (through the Centre for Construction Work Health and Safety), in partnership with the Australian Constructors’ Association (ACA), developed a safety culture model that integrates leading theories and frameworks.

The first element of the safety culture model is the ‘components’. The components are basically areas in which safety culture manifests itself as different practices, system configurations, and behaviours at different levels of an organisation. Looking across the safety science literature, nine components were identified:

- Leadership
- Communication
- Organisational goals and values
- Supportive environment
- Responsibility
- Learning
- Trust in people and systems
- Resilience
- Engagement.

Drawing on Professor Patrick Hudson’s\(^2\) concept of safety maturity, RMIT developed cultural maturity stages for each of the nine components. This approach enables organisations to measure their existing safety culture and determine their current maturity level and how to improve. There are five levels of maturity:

1. Pathological – who cares about safety as long as we aren’t caught?
2. Reactive – safety is important, we do a lot every time we have an accident.
3. Calculative – we have systems in place to manage all hazards.
4. Proactive – we try to anticipate safety problems before they arise.
5. Generative – health and safety is how we do business around here.

Through using a combination of a survey and interviews with a representative group of workers and leaders, it is possible to measure safety culture across the nine components and determine the level of maturity for each as well as overall. This is the approach that the Office of Industrial Relations (OIR) took when partnering with the three industry companies as part of the Safety Leadership Challenge. For more detailed information about the RMIT and ACA tool read the full report (PDF, 1.2MB).

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\(^{1}\) Edwards, J., Davey, J. & Armstrong, K. 2013

\(^{2}\) Hudson, P. 2007
Step 2: Prepare for data collection

Ensure your site is ready for data collection to maximise workforce engagement and participation.

Prepare the materials
The OIR has adapted research materials from the RMIT ACA toolkit during implementation of the Safety Leadership Challenge. These materials have been simplified and tested with seven separate construction sites to ensure maximum effectiveness as data collection tools:

- Site safety climate survey (DOCX, 61.5KB)
- Safety culture interview template (DOCX, 56.8KB).

You will need to review the survey and interview template wording to make sure it will be suitable for your site/organisation. Slight adaptations to wording, such as replacing key terms with practices or systems in use at your organisation, may be necessary.

You may decide that you need additional questions to measure your organisation's safety culture or to measure the impact of your Safety Leadership Challenge. When designing survey questions, consider the following points:

- Is the language simple, clear, and understandable by the workforce?
- Have you avoided double-barrelled items (e.g. asking two or more questions at the same time)?
- Is the question free from technical jargon or acronyms that others may not understand?
- Have you considered and selected the most appropriate survey response scale (e.g. agreement, frequency, extent)?
- Have you searched for existing questions/measures in the safety science literature before creating your own?

Obtain management support
For a safety culture evaluation to be successful, it must be supported by senior management. This goes beyond just obtaining their consent to proceed with the project. By senior management visibly showing their support through talking about the research and its importance directly with the site, workforce interest and engagement will be maximised.

Management should be involved in reviewing and approving the content of surveys and interview guides. They should also provide input into the development of communications and logistics plans so that data collection proceeds smoothly.

For maximum participation in the survey project, it is vital that management directly communicates with the site. This can be done via existing meeting processes such as pre-starts and toolbox talks.

Engage with the site
For the project to be successful it is strongly recommended that the site is engaged and consulted at an early stage.

The first stakeholders who should be consulted are the WHS committee and work health and safety representatives (WHSR). Provide a copy of the draft research tools to these groups and ask for feedback.

Seek their support to progress further with the project, and incorporate any appropriate suggestions into the measures and/or process to ensure it is successful. Also seek input into the proposed data collection plan to account for any intricacies or barriers to reaching the workforce.
Next, schedule a briefing to frontline leaders/supervisors. Include similar materials and information as delivered to the WHS committee/WHSRs. Instruct these leaders to pass the information onto their teams via a team meeting/briefing such as a pre-start or toolbox talk.

Following these steps will set the scene for your research project and maximise workforce participation.
Step 3: Collect the data

Follow a structured data collection process to preserve the integrity and accuracy of the information.

Bring the site together
Evaluating safety culture can be leveraged as an opportunity to bring the site together and provide the workforce with a token of appreciation. On a construction site, nothing says this more than a free BBQ hosted by the principal contractor (PC). Consider holding such an event during work time (e.g. Friday or Saturday morning) to send a signal that evaluating the safety culture is an important priority.

To adequately support this event, consider having one or more members of your senior management team attend. Bring the workforce together and conduct a final briefing about the research project. Points that should be covered include:

- why the company is measuring safety culture
- why the Safety Leadership Challenge is personally important to the leadership team (be authentic)
- the importance of being open and honest
- responses are anonymous
- how the information will be used and provide benefit back to the workforce.

Survey confidentiality
Without confidentiality, the workforce is likely to be reluctant to complete the cultural evaluation accurately. The best information is collected when people feel that their responses are anonymous and unable to be used against them if they are open and honest.

Promoting confidentiality is an easy process. The following points should be covered:

- Provide a sealed box where workers can place their completed surveys.
- Ensure supervisors and other leaders are not present in the room when the survey is being completed.
- Give workers adequate space to complete the survey without cramped or crowded conditions – this may require completing the survey in groups rather than all at once.

English as a second language
The modern workforce is varied and there is a possibility of non-English speaking or English as a second language workers. This need not be a barrier to completing a survey.

A technological solution may be appropriate, given the widespread use of smartphone technology. One application that OIR observed being used during our demonstration project with great success was Google Translate, which offers live translation of typed text using a smartphone camera.

Another solution that was observed to work effectively was identifying a bilingual worker. This worker reads out the survey question-by-question in their native tongue so that others can understand and respond effectively.

Finally, more expensive and involved tactics could include translating the survey into the target languages. If this avenue is taken, it is recommended that a professional translation service is used, and that both forwards and backwards translation is done to check the meaning and wording of each question.
Identifying participants
For the survey, it is appropriate to target the entire workforce, including subcontractors. Hearing from as many people as possible will ensure that your data represents an accurate picture of the safety culture.

For the interviews, it is recommended to select between 10-20 per cent of the workforce, depending on the total site population size. For example, for larger sites (>150), 10-15 per cent should be adequate. For smaller sites, a larger percentage of participants is needed.

In selecting a representative sample of people to interview, the following positions are recommended:
- PC project manager
- PC safety advisor/coordinator
- a small group (2-3) of PC foremen
- a moderate group (3-5) of health and safety representatives across both PC and subbies
- a moderate group of supervisors/leading hands across major trades
- a large (5-10) group of workers across major trades.

Conducting effective interviews
Interviewing requires basic skills in asking questions, listening, checking for further information, and building/maintaining a good relationship with the interviewee. Follow these tips when conducting safety culture interviews to make sure you collect good quality information:
- Position chairs and desks so that you are facing the interviewee and ideally not separated by a desk.
- Ensure the room used is private and confidential (e.g. first aid room or meeting room), and free from loud noise (if possible).
- Maintain good eye contact throughout the interview.
- Use active listening techniques, such as paraphrasing what was said (repeating back in a different way), asking open questions that elicit lots of information, and keeping an open and neutral body position.
- Reduce tension at the start of the interview by asking questions about the worker’s role and experience on site.
- Adopt a non-judgmental and calm demeanour throughout the interview.
- Clarify and check understanding if the participant uses a term or describes a situation that you don’t understand.

Note-taking during interviews
Importantly, you must collect detailed notes when conducting safety culture interviews. It is impossible to remember what was said word-for-word, and the accurate identification of safety culture themes relies on highly accurate interview data (if possible, direct quotes from participants – removing any names or identifying information where required).

This means that the interviewer will require the ability to conduct the session at the same time as collecting data, or that two people are present in each interview: one to collect the data and another to ask the questions. Either way is appropriate and simply depends on your resourcing and preferences. Further tips and guidance around collecting research information, with a focus on survey data, are available in Getting the most out of your climate survey (PDF, 367KB).
Step 4: Analyse the data

To measure safety culture accurately, a combination of survey and interview data is needed.

Typically we consider safety culture and climate as related, yet distinct concepts.

Safety climate is usually measured through numerical (quantitative) surveys that include a series of statements about things such as safety procedures, training, management commitment, and other various safety practices. Through responding to each item and averaging across the workforce, the overarching 'level' of the safety climate can be assessed.

Safety culture is best measured using techniques such as interviews and focus groups. This is because these methods allow workers to express their attitudes, beliefs, and perceptions in a way that cannot be captured by a survey.

The best approach to measure safety culture and climate is to combine both approaches.

This section describes the process of processing and analysing your safety culture and climate data, ready for reporting. Although an overview is provided here, we strongly recommend that you also review our annotated Evaluating your safety culture and climate presentation (PPTX, 2.4MB).

Managing data entry
Although data entry is a straightforward task, there are some basic principles that should be followed to maximise quality and accuracy.

- If using hardcopy surveys, make sure these are labelled sequentially so that data-entry errors can be traced back to the specific hardcopy survey and corrected.
- Try to minimise multiple people working on data entry so that consistency can be maintained.
- Following data entry, check for out of range values and typos – Microsoft Excel formulas can be used for this process.

Survey analyses
The OIR has developed an automated data entry and analysis template for use with the unmodified survey instrument:

- Safety climate survey analysis tool (XLSM, 141KB).

The spreadsheet will automatically compute the survey results and provide graphs and tables for inclusion in the final report. Follow the steps below to use this resource correctly:

1. Open the spreadsheet, ensure that macros are enabled, and the document is made a ‘trusted document’ if prompted.
2. Save a copy of the spreadsheet to an appropriate location.
3. Commence data entry from cell ‘B7’, making sure that the column labelled ‘ID’ is filled in with a sequential number that matches the labelled hardcopy forms.
4. Once data-entry has been completed, click on the ‘Run Analysis’ button, which will compute the relevant metrics and generate the graphs and tables.
5. Remember to press ‘reset’ if you need to do additional data-entry and regenerate the results.

Troubleshooting
- The spreadsheet checks for entries that are out of range (i.e. response values above 5 or not numerical characters). If this occurs the relevant cells will be highlighted red once the ‘Run
Analysis’ has been pressed. Remember to click ‘Reset’ after the relevant values have been corrected and before clicking on the ‘Run Analysis’ button again.

- The ID column must be filled out even if copying and pasting survey entries taken from an online survey. Without this ID column filled in to the last row of survey data, the analysis will not perform correctly.
- If you are experiencing problems and cannot find the source, re-download the spreadsheet and copy-paste your data entry into the new file.
- Remember to click ‘Reset’ if you need to regenerate the results graphs and tables following data entry or any error messages.

**Interview analyses**

Analysing and interpreting interview data can be overwhelming due to the volume of information collected. Fortunately, the Office of Industrial Relations has developed an analysis tool and process to make this easier:

- [Safety culture analysis tool (XLSX, 31.8KB)](#)

Underpinning the tool is a structured process of qualitative (comments, quotes) data analysis. This process is known as ‘thematic analysis’. More (technical) information about thematic analysis is available in [Using thematic analysis in psychology (PDF, 326KB)](#). Also, we have developed an example safety culture analysis tool so that you can see the process in action:

- [Safety culture analysis tool (example) (XLSX, 15.6KB)](#)

Follow the steps below to conduct thematic analysis on safety culture interview data:

1. The interviews are organised according to each of the nine RMIT safety culture dimensions. Transfer the data from your interview template to the corresponding worksheet tab as labelled.
2. Transfer individual sentences or statements that are about a single topic into the analysis tool, treating each row separately.
3. Make sure that the ‘Position’ column is filled out with either worker, supervisor, or manager for each row.
4. Once all the data from all the interviews has been transferred into the spreadsheet, start with the first dimension ‘leadership’ and complete the ‘sentiment’ column.
   a. The sentiment column summarises whether the statement is positive, negative, or mixed/neutral, which will help you when it comes time to thematically analyse the data.
   b. Simply put a ‘1’ if the statement is positive, a ‘0’ if is it neutral or mixed, and a ‘-1’ if it is negative.
5. Next, complete the ‘Code’ column by selecting the most appropriate topic or label that summarises what each statement is about (use the drop down code descriptor sheet at the top of each worksheet for assistance).
   a. At times, you may need to create new codes because the statement is about a topic not covered in the list. This is appropriate but try to use consistent codes for similar statements so that it is easier to identify themes.
6. Once all the statements have been coded, move to the ‘Summary’ worksheet and conduct the thematic analysis.
   a. To identify themes in the coded data, start with the first dimension ‘leadership’ and use the auto filter at the top of the columns to only display the data that are relevant to each code.
   b. Looking within each code, try to identify a common theme(s); essentially, what are multiple statements telling you about the underlying safety culture?
   c. Describe each theme in the Summary tab, drawing on the relevant comments to do so, and also select the most representative statement as an example of the theme.

**How do I know if it is a theme or just a comment that doesn't describe the safety culture?**

It can be difficult to decide whether one or more comments are indicative of a cultural theme. This is why interviewing a representative and adequately large sample of people is important. Use the following ‘rules of thumb’ to decide if a group of comments is a cultural theme or not.

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• Only 1-2 comments at one level of the organisation (i.e. only workers) – weak to very weak theme.
• 3-5 comments at two levels of the organisation (i.e. worker and supervisor levels) – moderate theme.
• 5 or more comments at two or more levels of the organisation – strong to very strong theme.

After following these steps you have successfully conducted thematic analysis and identified core aspects of your safety culture.

**Assigning cultural maturity scores**
The RMIT framework includes a safety culture maturity framework. This maturity framework allows an organisation to benchmark its current level of safety culture and identify a roadmap to improve through specific changes to practices, systems, and behaviours.

If you wish to assign a safety culture maturity level to your organisation, follow the steps below.

1. Access the [RMIT/ACA safety culture maturity framework (PDF, 1.2MB)](https://example.com).
2. Identify a team of between 2-3 people who can spend between 2-4 hours discussing the results and assign safety culture maturity ratings.
   a. Note that these people should ideally include those who conducted the culture interviews and one independent person who is familiar with the project.
3. Schedule a meeting with this team and provide both the culture analysis spreadsheet, this guide, and the RMIT/ACA report as preparatory reading.
4. During the meeting, work your way through each of the nine safety culture dimensions, drawing on the safety culture analysis spreadsheet (the Summary tab) and the RMIT/ACA framework.
   a. Compare the RMIT/ACA framework against the summarised themes from your organisation’s data, and as a group, discuss what maturity rating should be assigned to each dimension.
   b. Record each dimension in the Summary tab.
   c. Looking across all dimension ratings, as a group identify an overall rating and record this in the spreadsheet.

**Triangulation**
Triangulation refers to the process of using multiple sources of information to arrive at an overall conclusion. When measuring safety culture, it is best practice to combine survey with interview data.

To do so, when assigning the maturity scores for each safety culture dimension, take into consideration the survey results. For example, compare the ‘Leadership’ overall survey average against the themes identified in the culture data.

**What if the survey results conflict with the interview data?**
At times, and for a range of reasons, the survey data may not correspond to the interview results. For example, this could be due to the survey being administered incorrectly so workers felt pressured to answer more favourably, or the thematic analysis may have failed to identify an important theme that is apparent in the survey.

If this happens with your cultural evaluation, treat the interview data as the primary source of information and the survey as secondary.

Examine the detailed survey data (i.e. the item averages) to see if the answers to individual questions either corroborate or disconfirm the interview findings.

Also speak with workers to find out whether they felt comfortable at the time of completing the survey. Finally, consider the comments that people made during the interviews. People will often answer surveys in reference to previous experiences, so if their last job was very unsafe, this could mean their survey responses are overly positive. Interview comments will help uncover if this is the case on your site for most people, and if so, the survey data should be treated as a secondary and less accurate source of information.
Analysing survey and interview data can be challenging – please review all materials and guidance to build confidence and skills in this area before embarking on your safety culture project.
Step 5: Develop reporting outputs

Once the safety culture data have been analysed, transfer this information into a report and share to prompt change and improvement.

In general, think of your report like a funnel – begin with the very detailed information such as raw survey data and thematic analysis, then work your way down to the overall executive summary. This will ensure a high level of familiarity with the data before attempting to summarise it into core issues and strengths.

To help you with the reporting process we have developed a number of templates and examples:

- Safety culture evaluation report template (DOCX, 117KB)
- Safety culture evaluation report (example) (PDF, 718KB)
- Safety culture evaluation dashboard template (DOCX, 75KB)
- Safety culture evaluation dashboard (example) (PDF, 375KB).

Crafting an effective executive summary

Think about the executive summary of your report as if it were the only section that others will read. Accordingly, it has to be long enough so that it covers all the key points relevant to the project, but short enough so that it can be read in no more than five minutes. A length of no more than three pages is recommended.

When developing the executive summary, use our template report as a starting point. Remember that you may need to modify this template to suit your organisation’s document formats and preferences.

Developing dashboards

The template dashboards (included in both the overall report and the summary handout) attempt to combine and simplify a lot of complex information into one visual overview.

Before starting to complete the dashboards, consider if the template layout will fit your needs. For example, if the dashboards will be used by site supervisors or leading hands to feed back results to the broader workforce, consider if they need to be simplified or modified to include only key information. The OIR has provided some guidelines in the Appendix of the report template around results conventions such as cut-off scores and results shading/colour-coding.

Checking accuracy

Without accurate information, confidence in the research process and findings is likely to be significantly reduced. Therefore, it is vital that someone else is enlisted to check your work, with a focus on interpretation of key results.

Ideally this person would be someone closely involved in the project, such as a colleague who collected the interview data or project sponsor.

Consider presenting the preliminary findings to a small group of workers and supervisors (such as a selection of those interviewed for the project) to sense-check the results and identify interpretations of themes that might be inaccurate or misleading. Incorporate this feedback into your final report.

At a basic proofing level, consider copy and pasting survey and interview summary information directly from the spreadsheets into the report tables rather than retyping. Reproducing the information manually is likely to introduce errors.
Sharing information

Follow a similar process that you used when originally engaging with the site. In practice, this means the following:

1. Start with the site management team, which provides them with a chance to digest the information and formulate some responses and actions that could be taken.
2. Next, present the findings to the WHS Committee (it is recommended that action planning is done as a separate follow-up session to give time for consideration of the results).
3. Finally, and collaboratively with the WHS Committee, provide a shorter summary of key findings to the workforce along with a description of quick-wins and more longer-term actions that the site is going to undertake to improve.

It is vital that the broader workforce receives feedback on the findings. Without this step, damage could be done to engagement and morale, because participating in the project creates an expectation that things will change.

Also ensure that responsibility for action planning and results feedback is shared among site management and the WHS Committee/WHSRs. Creating ownership over the results across the site is important so that it becomes a site-oriented initiative that is driven independently of the research team’s involvement. Handing over the results and action planning (although acting as a coach and facilitator if needed) to the site is the best approach to maximise traction and likelihood of future change being implemented and sustained.