
Hazardous Manual Task Systems Thinking Assessment (HaMSTA) User Instructions

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Introduction

HaMSTA is based on systems thinking principles and enables identification of contributory factors which could result or have resulted in an injury from hazardous manual tasks. HaMSTA uses a taxonomy to assist in this identification and enables the development of systemic controls.

HaMSTA has been developed in Microsoft Access. The basic table relationships of tables are shown in *Figure 1*. For example, for one Hazardous Manual Task (HMT) there can be multiple Aspects. Each Aspect can subsequently have multiple associated Roles or Equipment.

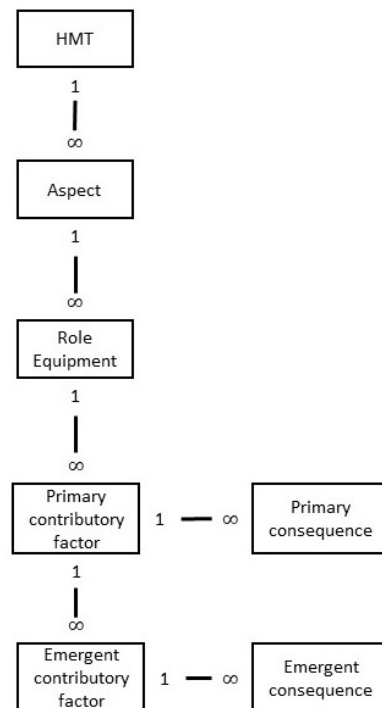


Figure 1 Basic structure of HaMSTA showing table relationships.

Note: HaMSTA has not yet been assessed for reliability or validity.

HaMSTA is a four-stage process

- Stage 1: Entering supporting information.
 - Documents
 - Roles and equipment
 - Consultation
- Stage 2: Entering HMT system data into the assessment tool.
- Stage 3: Assessment of the HMT.
- Stage 4: Recording and reporting the assessment, are included in the workflow.

Summary of Stages

The recommended order to complete HaMSTA is shown below. The HMT Description and Roles or Equipment must have information entered to enable the Assessment (5) to be started.

The HMT Description can be edited, or another entered during the Assessment (5).

The Documentation (3) and Consultation (4) can have information entered at any time during the assessment.

The Menu form is shown in *Figure 2*.

Setting up Forms

1. HMT Description – A brief description of the HMT/s to be assessed.
2. Roles or Equipment – The roles and equipment associated with the HMT.
3. Documentation – Documents relevant to the HMT .
4. Consultation – Names and roles of the people consulted or involved in the assessment.

Completing the HaMSTA

5. Assessment – The assessment of the HMT.

Reports

6. Four reporting options for: Assessment, Roles and Equipment, Documents, Consultation
 - Preview Reports – Displays the report without printing.
 - Print Reports – Prints the report.
 - Save Report as File – Saves the report as a file.
 - Mail Report – Emails the report.

The screenshot shows a web application window titled 'Menu'. The main heading is 'Menu' followed by 'HaMSTA - Hazardous Manual Task System Thinking Assessment'. The interface is organized into three main sections:

- Setting Up Forms:** A horizontal bar containing four buttons: 'HMT Description', 'Roles or Equipment', 'Documentation', and 'Consultation'.
- Completing the HaMSTA Assessment:** A horizontal bar containing a single button: 'Assessment'.
- Reports:** A section with a header bar containing four options: 'Preview Report', 'Print Report', 'Save Report as File', and 'Mail Report'. Below this header is a 4x4 grid of buttons. Each column corresponds to one of the report options, and each row corresponds to one of the assessment categories: 'Assessment', 'Roles and Equipment', 'Documents', and 'Consultation'.

Figure 2 Menu

Setting up Forms

HMT Description

A brief description of the HMT/s to be assessed is necessary to be entered at the start of the assessment using the HMT Description form (see *Figure 3* and *Figure 4*). The description can be very brief and is able to be edited during the assessment. For example, the HMT description can be as simple as “Lifting box”. It is also possible to enter more than one HMT.

A screenshot of a web browser window titled "HMT Description". The window has a light blue header bar with the text "HMT Description". Below the header is a large, empty text input field. At the bottom of the form is a blue button labeled "Save and Exit".

Figure 3 HMT Description entry form.

When a HMT description is entered, another blank entry box appears (see *Figure 4*). If another HMT description is not needed, click on the Save and Exit button.

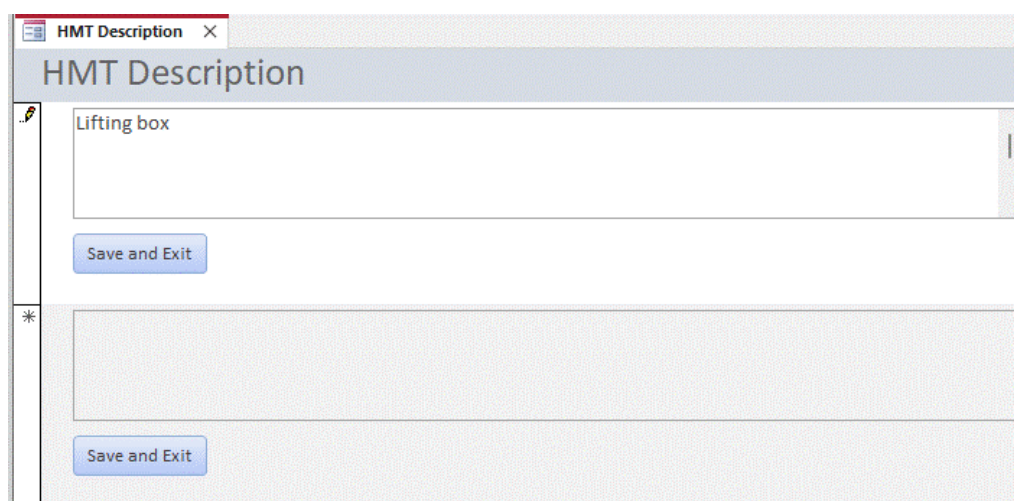
A screenshot of the same web browser window titled "HMT Description". The header bar is still "HMT Description". The first text input field now contains the text "Lifting box". Below this field is a blue button labeled "Save and Exit". Below the first field is a second, empty text input field, preceded by an asterisk (*) in the left margin. At the bottom of the second field is another blue button labeled "Save and Exit".

Figure 4 HMT Description entry form after a HMT description is entered.

Roles or Equipment

The roles and equipment associated with the HMT to be assessed is entered at the start of the assessment using the Roles and Equipment form (see *Figure 5* and *Figure 6*). The description of the roles and equipment should be accurate as they can be changed in the HMT Assessment stage.

Roles and Equipment

RMF Level

Role or Equipment

*

Government

Regulator Association

Company

Management

Staff

Work

Save and Exit Form

Record: 1 of 1

No Filter

Search

Figure 5 Roles and Equipment entry form.

The roles and equipment are entered in the relevant RMF Level (Government, Regulator/Association, Company, Management, Staff, Work). The RMF Level is selected by clicking on the relevant button on the left side of the form. After completing entry of the roles and equipment click on Save and Exit. The Roles and Equipment are available for multiple HMT Assessments i.e. they are not linked to a specific HMT Description.

If additional or editing roles and equipment is required during the HMT Assessment stage, it will be necessary to use the Roles and Equipment form. It will be necessary to close the HMT Assessment form to enable the additional or edited entries to be displayed in the HMT Assessment form.

Documentation

Documentation

HMT Description

←

→

Save and Exit

Document List

Description		File	
Description		File	
Description		File	
Description		File	
Description		File	
Description		File	
Description		File	
Description		File	
Description		File	
Description		File	

Record: 1 of 1

No Filter

Search

Figure 7 Documentation entry form.

Documentation

HMT Description: Lifting box

Save and Exit

Document List

Description	File
Company structure	File [Icon]
PEforM risk assessment.	File [Icon]
Code of Practice Risk Assessment	File [Icon]
	File [Icon]
	File [Icon]
	File [Icon]
	File [Icon]
	File [Icon]
	File [Icon]
	File [Icon]

Record: 1 of 1 | No Filter | Search

Figure 8 Documentation entry form with examples.

Consultation

The names and roles of the people consulted or involved in the assessment are recorded for each specific HMT as the people involved may change using the Consultation form (see *Figure 9* and *Figure 10*). Recording the names and roles enables other people on the organisation to know who was involved in the assessment and it is also important to be able to demonstrate to regulators that consultation was undertaken.

These can be updated at any time during the assessment.

A button is available to return to the HaMSTA Description form if an addition or edit is necessary.

[illegible]

Consultation

Consultation

HMT Description <i>Note: Enter a description of the HMT in the HaMSTA Assessment form.</i>	
--	--

[Go to HaMSTA Entry](#) <>

People consulted

	First Name	Last Name	Role
	Billy	Smith	WHSR
	Jim	Butler	Operations Manager
	Harry	Simson	Machine Operator
*			

Record: 14 | 4 of 4 | No Filter Search

- f. Emergent contributory factors
- g. Emergent consequences

Figure 11 HaMSTA entry form showing all sub-forms.

The right and left arrows enable navigation to the next or previous record. The “trash can” deletes the record on the form and the associated sub-forms. It does not delete the record and the “upper forms” (see Figure 12).



Figure 12 Next and Previous record, and record deletion buttons.

Hazardous manual task details

A description of the hazardous manual task can be entered or edited on this form (see Figure 13). There should be sufficient detail to enable other people who receive the assessment to understand the HMT task. On the left side of the form are two tick boxes “Injury reported?” and “HMT Characteristics”. For a manual task to be considered hazardous, either an injury has resulted from the task, or the task has characteristics described Australian legislation and codes of practice for hazardous manual task, for example (SafeWork SA 2011, Safe Work Australia 2018, NSW Government 2019, Work Safe Victoria 2019, Workplace Health and Safety Queensland 2021).

Figure 13 HMT task details form showing an example and an injury has been reported.

Aspects

Aspects associated with the HMT are entered into the Aspects form (see **Error! Reference source not found.** and Figure 14). Aspects can exist at all RMF levels (Government, Regulator/Association, Company, Management, Staff, Work) and should describe a specific aspect that exists within the RMF level. For example, the HMT of “Lifting box” has a Company aspect of “Company procedures for lifting boxes”, another Company aspect could be “Box design does not include hand-holds”. At the Government RMF level an aspect could be “Allowing the safety regulator to provide design advice on equipment”.

The key to a HaMSTA Assessment is to look up and out and not down and in. This means to look for systemic aspects at the upper RMF levels and not only focus on the lower RMF levels.

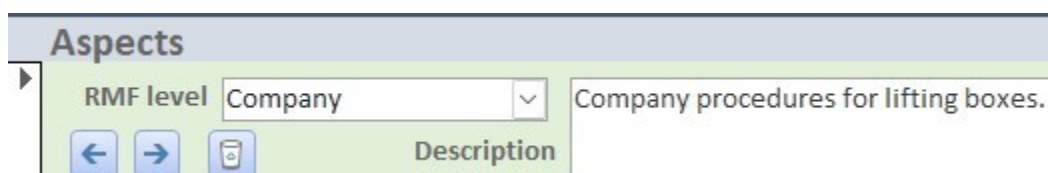


Figure 14 Aspect form with an example.

Roles and Equipment

The role or equipment relevant to the Aspect is chosen from the list that was created at the start of the assessment (see Figure 6). The list is opened in the Roles and Equipment section by clicking on the down arrow at the side of the list (see Figure 15) and the one relevant to the Aspect is selected. A relevant role for the Company Aspect is the Chief Executive Officer as in the organisation, the Chief Executive Officer has the ultimate responsibility for the development and communication of procedures (see Figure 16).



Figure 15 Roles or equipment form showing the combo box list.

Figure 16 Roles or equipment form after a selection has been made.

Primary contributory factors and primary consequences

The Primary Contributory Factors and Primary Consequences forms have a one to many relationship i.e. for one Primary Contributory Factor there can be one or more Primary Consequences (see Figure 17).

Figure 17 Primary contributory factors and primary consequences form.

Primary contributory factors

One or more Primary Contributory Factors can be associated with each Aspect i.e. for one Aspect there can be one or more Primary Contributory Factors. The Primary Contributory Factor relevant to the Aspect is chosen from a list showing the RMF Level, Contributory Factor, and Contributory Factor Description (see Figure 18).

The selected Primary Contributory Factor and examples are shown on the form (see Figure 19). The list of examples is not exhaustive and while they can be used a Primary Consequence, they serve to assist in the identification of primary consequences relevant to the organisation in which the HaMSTA is be undertaken.

Figure 18 Primary contributory factor form showing a partial list.

Figure 19 Primary contributory factor form after a selection has been made.

Primary consequences

The Primary Consequences form has default entries after the selection of a Primary Contributory Factors i.e. No primary consequence entered, No hierarchy entered, and No control/feedback entered (see *Figure 22*).

As one or more Primary Consequences can exist for each Primary Contributory Factor, it is good practice to have unique Primary Consequences as this then enables the Control Hierarchy and Control/Feedback to also be unique.

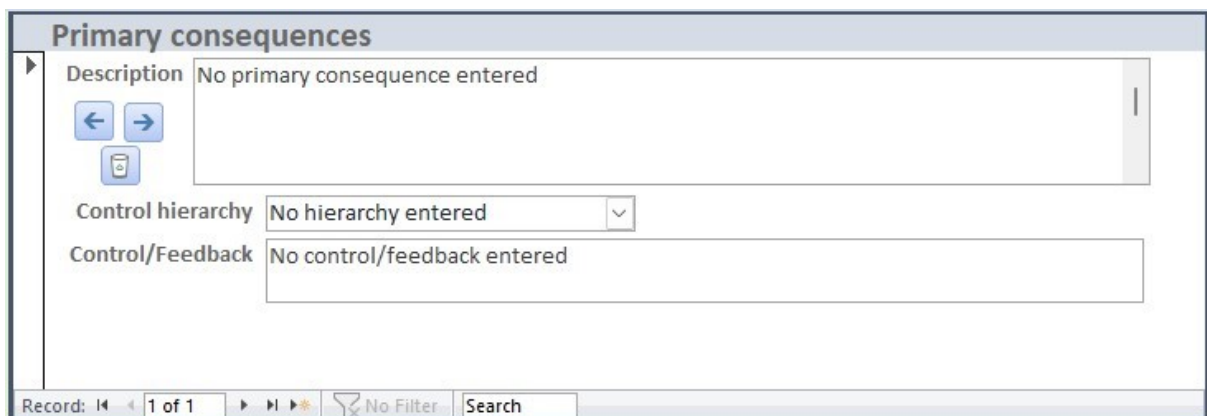
The screenshot shows a web form titled "Primary consequences". It has three main input fields: "Description" with the text "No primary consequence entered", "Control hierarchy" with a dropdown menu showing "No hierarchy entered", and "Control/Feedback" with the text "No control/feedback entered". To the left of the Description field are three icons: a left arrow, a right arrow, and a document icon. At the bottom of the form is a navigation bar with "Record: 1 of 1", a "No Filter" button, and a "Search" input field.

Figure 20 Primary consequences form showing no entry made.

Hierarchy of control

The "standard" Hierarchy of Control has an additional control "Systemic". The standard hierarchy (elimination, substitution, isolation, administration, personal protective equipment) are applicable to the lower RMF levels of Staff and Work, however they are not necessarily useful at the upper RMF Levels. In the example shown in *Figure 22*, Administration is shown as it could be considered that developing a system to communicate procedures and confirming understanding is an administrative control. However, if the system is robust and sustainable, then the control would be Systemic even though there is an "administrative" process undertaken to develop the procedures and system.

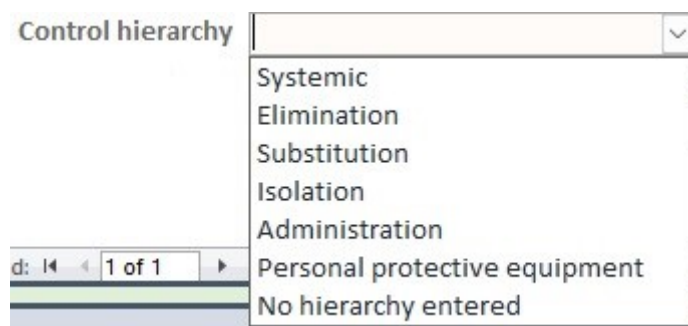
The screenshot shows a dropdown menu for the "Control hierarchy" field. The menu is open, displaying a list of options: "Systemic", "Elimination", "Substitution", "Isolation", "Administration", "Personal protective equipment", and "No hierarchy entered". The "Systemic" option is currently selected and highlighted. Below the dropdown menu, a small navigation bar shows "d: 1 of 1".

Figure 21 Hierarchy of control list.

An example Primary Consequence, Control hierarchy, and Control/Feedback is shown in *Figure 22*. In the example two controls are shown (1) a system to communicate, and (2) [system to] confirm understanding. This could be better split into two separate controls as the action required to implement each is different.

Figure 22 Primary consequences form showing an example.

Emergent contributory factors and emergent consequences

The Emergent Contributory Factors and Emergent Consequences forms have a one to many relationship i.e. for one Emergent Contributory Factor there can be one or more Emergent Consequences (see Figure 23).

Figure 23 Emergent contributory factors and emergent consequences form.

Emergent contributory factors

One or more Emergent Contributory Factors can be associated with each Primary Contributory Factor i.e. for one Primary Contributory Factor there can be one or more Emergent Contributory Factors. The Emergent Contributory Factor is chosen from a list that shows the RMF Level, Contributory Factor, and Contributory Factor Description (see Figure 24).

The selected Emergent Contributory Factor and examples are shown on the form (see Figure 25). The list of examples is not exhaustive and while they can be used as a Primary Consequence, they serve to assist in the identification of primary consequences relevant to the organisation in which the HaMSTA is being undertaken.

Figure 24 Emergent contributory factor form showing a partial list.

Emergent contributory factors

Pick list: RMF level: Description:

Examples: * Internal communication media such as newsletters, notice board material, posters, do not include the encouragement of workers to raise issues with managers resulting in no change in the likelihood of injury.

Figure 25 Emergent contributory factor form after a selection has been made.

Emergent consequences

The Emergent Consequences form has default entries after the selection of a Primary Contributory Factors i.e. No primary consequence entered, No hierarchy entered, and No control/feedback entered (see Figure 26).

As one or more Emergent Consequences can exist for each Emergent Contributory Factor, it is good practice to have unique Emergent Consequences as this then enables the Control Hierarchy and Control/Feedback to also be unique.

Emergent consequences

Description:

Control hierarchy:

Control/Feedback:

Record: 1 of 1 No Filter Search

Figure 26 Emergent consequences form showing no entry made.

An example Emergent Consequence, Control hierarchy, and Control/Feedback is shown in Figure 27 which is associated with the Emergent Contributory Factor in Figure 25. In the example two controls are shown (1) inclusion of procedure communication in company audits, and (2) inclusion of procedure communication in manager walk-arounds. This could be better split into two separate controls as the action required to implement each is different.

Figure 27 Emergent consequences example.

Reports

Four reporting options for: Assessment, Roles and Equipment, Documents, Consultation

- Preview Reports – Displays the report without printing.
- Print Reports – Prints the report.
- Save Report as File – Saves the report as a file.
- Mail Report – Emails the report.

The Preview Reports are shown below for the example data used above. The format of the reports is selected from the Menu.

HaMSTA Assessment report

The HaMSTA Assessment report displays the HMT Description, Aspect, Role/Equipment, Primary Contributory Factor with associated consequences and controls, and the Emergent Contributory Factor and associated consequences and controls. There were two Emergent Contributory Factors in the example which are shown under the one Primary Contributory Factor. The report groups the assessment data together (see Figure 28).

HaMSTA Assessment					
Hazardous Manual Task Description					
Lifting box					
Aspect					
Company	Company procedures for lifting boxes.				
Role/Equipment					
Company	Chief Executive Officer				
Primary Contributory Factor					
Communication	Company	The internal and external communication of information associated with manual tasks.	Workers (staff) are not aware of the correct procedure for lifting boxes.	Establish a system to communicate procedures to workers and confirm understanding.	Administration
Emergent Contributory Factor					
Action management	Regulator/Association	The use of sanctions, and delivery of services or support.	Safework (safety regulator) issues an Improvement Notice on the Chief Executive Officer for not providing adequate instructions to manage safety and health risks.	Include communication of procedures in company audits and walk-around tours by managers.	Systemic
Emergent Contributory Factor					
Engagement	Staff	Engaging with management by expressing views and contributing to consultation and decision-making processes where opportunity provided.	Managers are not aware that procedures have not been communicated to workers (staff) resulting in an increased likelihood of injury.	Include communication of procedures in company audits and walk-around tours by managers.	Systemic

Figure 28 HaMSTA Assessment report example.

Roles and equipment report

The example had 14 roles or equipment in the pick list (see *Figure 15*), however as only the Chief Executive Officer was used in the example, the report only displays the roles or equipment associated with the HMT (see *Figure 29*).

Roles and Equipment	
HMTDescription	
RMF Description	
Role and Equipment	
Lifting box	
Company	
Chief Executive Officer	

Figure 29 Roles and equipment report example.

Documents report

The Documents report includes the documents associated with the HMT (see *Figure 30*). If more than one HMT is assessed, the documents associated with the HMT will be included under each HMT Description.




Documents			
HMT Description			
Lifting box			
Document Description	File	Document Description	File
Company structure			<input type="checkbox"/>
PEforM risk assessment.			<input type="checkbox"/>
Code of Practice Risk Assessment			<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>
	<input type="checkbox"/>		<input type="checkbox"/>

Figure 30 Documents report example.

Consultation report

The Consultation report includes the people associated with the HMT (see *Figure 31*). If more than one HMT is assessed, the people associated with the HMT will be included under each HMT Description.

Consultation			
HMT Description			
Lifting box			
Name	Harry Simson	Role	Machine Operator
Name	Jim Butler	Role	Operations Manager
Name	Billy Smith	Role	WHSR

Figure 31 Consultation report example.

References

NSW Government (2019). Code of Practice Hazardous Manual Tasks. S. NSW. Sydney, NSW Government.

Safe Work Australia (2018). Code of Practice Hazardous Manual Tasks. S. W. Australia. Canberra, Safe Work Australia.

SafeWork SA (2011). Hazardous Manual Tasks Code of Practice. S. SA. Adelaide, South Australia.

Work Safe Victoria (2019). Compliance Code Hazardous manual handling. W. Victoria. Melbourne, Victoria.

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