

## ACCIDENT ANALYSIS BENCHMARKING EXERCISE - METHODS EVALUATION TABLE

(Based on Yves Dien's document: Proposal for an Evaluation Criteria)

### INSTRUCTIONS:

This table is for evaluation of methods used by the benchmarking teams. Each team should provide an evaluation of the methods it used. (Optionally, different team members can fill out their own forms. Just indicate clearly whether the form is from the team or an individual expert and that the team is identified on each form.) Since the questions themselves provide only objective responses, you are encouraged to elaborate your responses in the "Additional Comments" suggestion. Please keep in mind that you will be requested to update this table for the subsequent phases of the exercise. This table should be submitted with the Exercise Description Form – Summary of Results of Phase (1, 2 or 3)

Please note that this form shows examples of how each method could be evaluated. Also, an explanation of the criteria is included in the attached document ("Proposal for an Evaluation Criteria").

### TEAM COMPOSITION

<b>DATE: 4 December 2018</b>		
<b>LIST OF TEAM MEMBERS:</b> <i>(Add rows as necessary)</i>		
<b>NAME</b>	<b>ORGANIZATION</b>	<b>EMAIL ADDRESS</b>
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<b>INDIVIDUAL COMPLETING THE FORM</b> <i>(name or names):</i>		
Maureen Wood		

Method	Phase	Self-supporting		Graphical Output		Accessibility			Learning easiness			Scope of investigation 1 - the work and technological system; 2 - the staff level; 3 - the management level; 4 - the company level; 5 - the regulators and associations; 6 - the Government level	Duration of the investigation			Replication		
		Yes	No	Yes	No	Yes	To some extent	No	Yes	To some extent	No		days	weeks	months	Yes	To some extent	No
STEP	Phase 1		X	X		X			X			1, 2, 3,4	1			1		
Tripod Beta	Phase 2 and 3		X	X				X		X		1,2,3,4	15					
CAST	3		X	X			X			X		2,3,4, 5, 6	2					
Accimap	2 and 3			X			X			X		1 to 6		2-3			X	

Note: The methods shown in the table above are just examples. Please fill in the form according to the methods you use during the analysis. Please keep in mind to indicate also in which Phase the method is applied.

**S.W.O.T. Analysis Table** Please provide a SWOT analysis of each method that you used (to the best of your availability)

Method	Strengths <i>(Positive aspects of any kind, e.g., ease of use, results, logic used, etc.)</i>	Weaknesses <i>(Negative aspects of any kind, e.g., ease of use, results, logic used, etc.)</i>	Opportunities <i>What kind of positive outcomes may result from the strengths?</i>	Threats <i>(What kind of negative outcomes may result from the weaknesses?)</i>
STEP	Very easy to use with just pencil and paper	Very simplistic. Only provides a timeline and list of actors	<ul style="list-style-type: none"> <li>• Easy choice for any safety expert no training needed</li> <li>• Provides a timeline of events</li> </ul>	<ul style="list-style-type: none"> <li>• Another method is required to analyse what caused each event on the timeline</li> </ul>

	Very simple output, transparent		as a starting point for analysis	
<b>TRIPOD BETA</b>	<p>Detailed barrier analysis provides strong foundation for many types of indirect analysis.</p> <p>With software, the output is very user friendly. Without software, it is not possible.</p>	<p>Requires purchase of software.</p> <p>May require some training to use, but if one has already worked through a bow-tie analysis, self-training may be possible.</p> <p>Becomes difficult to work with in complex cases because the graphic presentation becomes too large for a computer screen</p> <p>Does not really work well for indirect causes, partly because of the challenges with graphic representation but also because the method does not give a satisfying way to describe complex causality of indirect causes</p>	<p>Excellent for understanding direct causes, especially in complex situations. It provides a solid foundation for further analyses of different types, e.g., human and organizational factors, the role of regulation, etc.</p>	<p>The cost of software and the need for training may make this method inaccessible to many inspectors.</p>
<b>CAST</b>	<p>Gives a lot of answers to "why did this happen?" Very strong in identifying breakdowns of systems, e.g., communications, broken links, lack of follow-up, role of various actors, and in dealing with causality that may have occurred back in</p>	<p>No formal training package and not many examples of the method are available (but they are increasing). The Tutorial created by Nancy Leveson is very good, but only for confident learners. I am not sure if I even properly used the method, but it</p>	<p>In my opinion, this method builds on top of a direct cause analysis but it cannot be used for direct cause analysis.</p> <p>The flow chart and table are powerful in communicating results if you have already a good analysis of direct</p>	<p>The lack of a formal training package and limited examples makes this method less accessible to many safety experts.</p>

	<p>time. Also, provides a path towards solving these issues.</p> <p>The graphic representation seemed very powerful to me.</p> <p>Also, no software required!</p>	<p>made sense to me.</p> <p>If you don't have a good analysis of direct causes, this method may be more of a struggle.</p>	<p>causes. Might even be considered easy to use in this context.</p> <p>One may have to be a fairly confident learner to attempt this method without supervision, but the graphs from existing analyses may be powerful teaching tools.</p>	
<b>AcciMap</b>	<p>Easy to understand the principles</p> <p>Does not require commercial software</p> <p>Output can be adapted to suit the case in question.</p>	<p>Requires intensive work on tracing information and mapping it to the correct level of the system</p> <p>Does not have a graphical tool, so the work has to be done by hand.</p> <p>Not formally standardised</p>	<p>Opportunity to discover the relationships between actions within the system.</p> <p>Makes very clear that technological failures have causes within the organizational and management system (and possibly also external influences and drivers.</p>	<p>The work involved and lack of formalized "boxed version" means that the principles must be learnt first and then the information sorted before developing the final AcciMap.</p> <p>This is a lot of work, which may lead to the approach being rejected as it is not seen as being standardized.</p>

**Comment [HW1]:** I've added this, a personal assessment

ADDITIONAL COMMENTS (if any)