***JRC Accident Analysis Benchmarking Project***

**Proposal for investigation methods evaluation criteria**

# Role of criteria

One goal of the Project is to compare investigation methods in a way that makes their underlying characteristics obvious. The aim is to enable would-be users to choose methods that best fit their expectations of investigation outputs.

It means, amongst other things, that goal is not to rank a method towards others. It is to give an understandable and comprehensive overview of a panel of investigation methods, so that an investigator could choose the one he/she feels the more comfortable with. Furthermore, one output of the Project could be to enable an assessment, at least part of an assessment

The proposed criteria are ***mainly*** derived from the work carried out by Munson[[1]](#footnote-1) and by Sklet[[2]](#footnote-2)

# The quantitative – qualitative issue

How to mark criteria? Often, the feeling is that a quantitative result is more objective, so more reliable and therefore more trustable. Yet, an event investigation is a matter of knowledge, skill, expertise, capability, and … all features not really quantifiable. So, it seems better to "mark" criteria with values which are not (explicitly/directly) quantitative.

# Number of criteria

Relevant number of criteria to assess a method depends on the person who wish to choose between different methods. He/she could more sensitive to one (several) criteria and less convinced by others. So we have to provide him/her with a set of criteria as large as possible in order he/she can "do his/her shopping".

# Proposed criteria

***Name***: **Self-supporting**

***Description***: some methods intends to cover the whole event process whereas others could be (are) used as input for other investigation methods

“***Values***”: Yes / No

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***Name***: **Graphical Output**

***Description***: Some methods propose a diagram of the accident sequence (graphical representation of the scenario). It is supposed to help understanding of the event and to provide a tool for better communication between investigators.

“***Values***”: Yes / No

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***Name***: **Accessibility**

***Description***: For some methods documentation is freely accessible while documentation has to be paid for other methods. We also note that according to a method, its documentation could be largely disseminated (e.g. access through internet) or npot. Furthermore some methods request training which is charged.

“***Values***”: Yes/To some extend/No

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***Name***: **Learning easiness**

***Description***: Can method be used with no "extensive formal accident investigation training" and/or with no "deep" knowledge about some scientific domains (e.g. sociology, engineering science…)

“***Values***”: Yes/To some extend/No

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***Name***: **Scope of investigation**

***Description***: A method will allow to address more or less levels of the sociotechnical system. We refer to levels defined by Rasmussen for risk management[[3]](#footnote-3). The six different levels are:

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

“***Values***”: Range of levels tackled (e.g. 1 -> 2; 1 -> 4; 1 -> 6…)

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***Name***: **Duration of the investigation**

***Description***: According to method used duration of an investigation could differ. Its duration could be a relevant parameter for choosing a method.

“***Values***”: Days/Weeks/Months

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***Name***: **Replication**

***Description***: Even if an investigation method allows some margins for manoeuvers, it has to be strict enough, so that it results/outputs do not depend on the investigator but on itself. In other words, two different investigators would reach (more or less) the same result applying the same method on a specific event.

“***Values***”: Yes/(To some extend )/No

1. Munson, S. (2000), *Assessment of accident investigation methods for wildland firefighting incidents by case study method*. Theses, Dissertations, Professional Papers.Paper 1616, The University of Montana, USA. [↑](#footnote-ref-1)
2. Sklet, S. (2002), *Methods for accident investigation*, ROSS (NTNU) 200208, NTNU, Trondheim, Norway. [↑](#footnote-ref-2)
3. Rasmussen, J. (1997), Risk management in a dynamic society: a modelling problem, *Safety Science*, Vol. 27, N°  2/3, pp. 183-213. [↑](#footnote-ref-3)