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Discussions

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Interactive comment on "Analysis of a risk prevention document using depend ability techniques: a first step towards an effectiveness model" *by* Laetitia Ferrer et al.

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We sincerely thank the referee Mr K Serrhini for his review of our paper and his relevant remarks. Please find below a point-by-point reply to your questions. We hope that our responses will agree with your thinks: (Your question is reported with a Q and our response with a R)

Q- In this work, the FMEA failures are concretely identified & characterized by a binary (0, 1) criteria (detections elements) approach leading to a global score for each Dicirm.

R- Only regulatory compliance detection elements are characterized by a binary criteria

approach: compliance is relative to the presence/absence of the components required by the National Model of the Environmental Code. Form and content detection elements will be characterized by a notation scale (0-10 such as shown in Table x) and all those notes will finally be aggregated leading to a global score for the document. A sentence will be added to clearly indicate these two kinds of approach

Q- This multi-criteria evaluation is about 6 pages long (p. 26-31) where 4 pages are dedicated to the Table nâŮęX !

R- Table n°X will be adjusted to reduce the number of pages dedicated to and to facilitate its reading.

Q- After an introduction of about 3 pages, the state of the art is the subject of 2 pages (p. 5-6) and the detailed presentation of the method used (and applied on a Dicrim as a system) is the object of at least 19 pages (p. 7-25):

R- hence there is a significant imbalance between the two main parts of the article We will rebalance the two parts by reducing the introduction and increasing the state of art. The presentation of the method will also be changed as it is explained in next answers (please see notably Response 5).

Q- The main aspect of the work is indicated by the fifth column of Table VII on the page 20. Indeed, the "detection elements" of the "form" of the Dicrim considered are: The relevance of the association of the text with a background, the font size of the text, the presence of photos, the size of the photos, the typography and the color of the titles ... In brief, it is a question of evaluating the visual attractiveness of the document by the specialists (and not by the end users) and not necessarily its understanding (cognitive integration).

R- FMEA allows identifying two types of detection elements: form and substance. That is why it was as much about evaluate the visual attractiveness of the document as it was about its understanding (evaluated by substance elements such as "useful data"

for instance).

Q- This attractiveness (visual) relates to known disciplinary fields: semiology & semiotics, study of eye movements, extraction of knowledge (if research on cognitive integration topic) ... with numerous works not taken into account. Why a font size 12 (standard size) and not another value? What values of visual acuity (observer), salience / contrast (observed) ... for a more readable Dicrim? Which rate between text and image to recommend? Recent studies have shown that only a small area (10% or 20%) of a document can be of interest (up to 80%) to the reader compared to the rest of the document (area of interest analysis).

R- Some references issued from those disciplinary fields (Backer, Bost, Cobb 1996, Chesneau 2006, Roulet 2008,...) will be added in the text to justify the list of detection elements identified. In the same vein, a text (supported by references) will be added to support the scale references given in Table IX (font size 12) and others you propose such as "rate between text and image" or "values of visual acuity (observer)"

Q- Can we summarize the methodological / theoretical part and focus more on the elaboration and evaluation of criteria (with specialists and / or end-user volunteers)? In other words, what is the added value of the methodology section with regard to the application?

R- Our two main results are: -the development of a method of analysis leading to various types of criteria (compliance, form, substance) which is generic and applicable to other documents of prevention. -the application of the method to the DICRIM with an example of the use of the compliance detection elements To better exhibit the added value of our works, we will change the plan of the article. We will remove the DICRIM from the presentation of the methodology because our methodology is a systematic reasoned and reusable approach, the functions remaining the same for other prevention documents. DICRIM will be presented after as an application. The Figure 3 will be located at the beginning of the section of the global approach and the section "system

studied" will be showed after it. We will also add a hypothesis that the methods of dependability analysis can be applied to the case of the effectiveness of risk prevention documents the paper is answering. In this way, those changes will rebalance the number of pages of the different sections (complement to Response 3).

Q- The methodology part is a big work whose final result (multi-criteria rating) is disappointing. For example, this section could have more relevant results like UML model given the many logigrams and tables developed. Finally on the general form, reading the paper is very difficult because of the interdependencies between the different logigrams and tables. The font size of the text is not equal to 12 (standard size)!

R- Some tables are not essential in the paper and will be removed to simplify the reading (table 5 and maybe 7). Figure 5 will be improved as an UML model given the link between tables. As indicated in our reply to the first referee M Douvinet based on its remark, the FMEA table will be removed and replaced by a graphic representation in the form of a bowtie schedule showing a set of scenarios .

Q- The developments of the page 15 ... cannot be justified by only one reference (CEPRI)!

R- Some references will be add to justify those developments as (Slovic 1987 ; Khaneman & Tversky 1979 ; Sjoberg 1998...) regarding cognitive bias.

Q- Figure 1 is unreadable. This type of figure (logigram) is easy to understand by an "expert" of the French system

R- We will apply some advices suggested by M. Douvinet to improve this figure. We hope that it will be easier to understand even by a non-expert of the French system because it is an important figure to set the context, to locate the DICRIM in this prevention management and also to show its complexity.