

## A View of the Key (Unique) current Advantages and achievable Advances of the FRAM methodology, highlighted in FRAMily 2016

This is meant to augment not replace the standard descriptions on the website and the literature. It is an attempt to capture the basic process (as teased out in discussions in FRAMily 2016) as a basis for cataloguing current capabilities and now accessible opportunities.

The Key steps in the Methodology could be summarised as follows:-

**1. A process is targeted for analysis**

We attempt to familiarise ourselves with, and document the process through, research, interviews, facilitated group sessions, Quality circles, etc.

**2. We identify, describe and assemble the essential FUNCTIONS involved**

Background and foreground, (using standard FMV workspace?)

We may be able to hyperlink these function names to a database of properties, etc.

NOTE at this stage there are no links defined between these functional nodes. This is not a network!!! (Possibly THE most important and fundamental insight from the “FRAMily 2016” discussions?)

**3. Look at the first step. What functions are needed in this step?**

(Do we need an ability to select them in FMV and selectively highlight /display them as the active functions in this step?)

Fill in the Aspect descriptors in FMV for the functions in this step. Let FMV show the linkages as normal (Highlight Orphans and conflicts as normal?)

Possibly have two sets as separate displays: one for Work as Imagined (WAI) and one for Work as Done (WAD), to be able to compare/ contrast.

**4. For this step examine this specific instantiation;** i.e. the (now) network of interactions and interdependencies could be analysed qualitatively and (semi) quantitatively, for insights, lessons, improvement options (Fractional Advantages?), etc. These could come from:-

- Visual inspection and discussions.
- HAZOP type guidewords for systematic interrogation of the interdependencies (too much, too little, etc.)
- Riccardo’s estimate of different variabilities, to highlight interaction conflicts (as is versus as imagined), using Simon’s Variability versus Adjustment (range of acceptable values?) display. (Highlight/ colour anomalies and conflicting links?)
- Probabilities of successful outputs from individual functions and the overall process, using the instantiation as a BBN.
- Checking the validity/completeness of this particular network / step using FRAMA etc.
- Probing the reasons for anomalies through deeper “mining” of functions within functions (this would require a 3D FMV capability?)

**5. Repeat for each step of the process.** Utilise Rees’s step through “recorder” to walk through the sequence of instantiations to observe changes. As changes between steps are Markovian (i.e. non-predetermined and only governed by the immediately preceding instantiation), different iterations may produce differently behaving sequences of steps?

**6. Produce Reports that can communicate and be appreciated by non FRAM experts.**

For example, Riccardo’s Monte Carlo predictions, Simon’s Variability vs Adjustment (System Resilience). Performance predictions, such as Relative behaviours of options, Evaluation of options on cost effectiveness (ETTO parameters?), etc.

**7. Improve the process addressing the lessons learned and reanalyse!**