

ARW 2017 TOPICS FOR PLENARY SESSIONS

BACKGROUND INFORMATION:

- The goal is to stimulate discussions, exchange opinions, expertise and concerns about specific pre-defined topics (see topic list below) in 1.5 hours long sessions taking place on Monday and Thursday afternoon.
- The discussions will be documented and deliverables per topic are defined.
- A proposal of moderators can be found below. Additional moderator can be recruited.
- The general rule could be to spend around 20 min per topic, but its fully open to the dynamics of the audience to stay on a topic for much less or much more time than 20 minutes.
- It would be good to have 2-4 topics prepared to cover on Monday.
- It is planned to ask the audience on Monday about what topics they are especially interested in Thursday.
- Additionally, provide a method (ex: whiteboard) for contributing topics.
- There should be 2 session moderators per topic and potentially some supporting people in the audience who know about the topic in advance and can prepare some vital key points to trigger the discussion if and where needed.

MONDAY SESSION: POSSIBLE TOPICS

TOPIC: GAME OF NUMBERS: THE NEED OF COMPARABILITY AND WHO WE ARE

Moderators: Annika, Duane

CONTENT:

- We have observed the trend of tediously trying to be able to present and compare overall availability figures across different accelerator driven facilities. Seemingly in search of one number to rule them all.
- Generating this measuring stick is difficult due to:
 - variety of facilities
 - different scientific purposes
 - different levels of complexity
- For whom is it important to compare availability figures across different accelerator complexes?
 - Politicians and funding
 - Science and research
 - Competitive market
- Does it make sense to work on a common metrics to define and analyze accelerator availability?
 - Does this effort contribute to science?
 - What do we gain when doing that?
 - Are these efforts helpful to optimize performance from an economical or scientific point of view?
- Who are we? Are we competitors or scientist? Do we work for industrial/economic numbers or for research?
- What is a more scientific way forward to analyze systems in research facilities for their reliability and availability?

DELIVERABLES:

- Overview on different analysis methods and what aspects/measures are covered by these methods. What is the goal of these methods? And what methods should be developed further or are missing?
- Reasons of comparing performance in single numbers: is it just a general trend to simplify things into single numbers to make communication more effective and less time consuming? (we are flooded with too much information in general every day and may have picked up on the trend of simplification without noticing).

Side comment: I notice that also other fields in science have the same issue (not only availability numbers of accelerators)

- Wish list: what else should be compared and how? (e.g. time to repair, time to be back to full machine/beam performance after a technical stop, debugging a problem and solving it, e.g. post mortem analysis, MTBF)

TOPIC: HOW TO COMBINE RAMI AND MACHINE PROTECTION EFFORTS

Moderators: Enric , Riccard

CONTENT:

- What are common aspects for RAMI and MP?
 - Where do goals overlap and where do they differ?
- Can both aspects be addressed simultaneously?
 - Should they be addressed simultaneously?
- How to set up a risk matrix covering both aspects: RAMI/MP
 - Example at ESS
- Can a common set of MP and RAMI requirements be defined for use at any accelerator facility?
 - Is it needed or helpful?
- How to implement RAMI and MP requirements in an efficient way?
 - Use case workshops, Integration, how to address unknown info failure modes, MTBF figures etc.

DELIVERABLES:

- Report on which aspects of MP and RAMI can (and should) be treated simultaneously and why (and how).
- List of examples where this effort was successfully implemented.

TOPIC: PREDICTIVE METHODS/ EARLY FAULT DETECTION METHODS

Moderators: Annika, Duane

CONTENT:

- The trend in general is towards heavier computation embedded on control systems
 - Critical functions demand heavier computation
 - More software interlock functions are used instead of purely relying on hardwired interlocks.
- How to transition from slow/software interlocks to more predictive algorithms?
- What is the future for early fault detection?
 - What is currently done at different facilities?
- How does this impact on systems reliability and overall availability?

DELIVERABLES:

- Get collection from audience and get a list of good practices.

TOPIC: HOW CAN WE SHARE OUR KNOWLEDGE AND EXPERIENCE?

Moderators: Julian Brower and afterwards Johannes Gutleber

CONTENT:

- At ARW 2015, Enric and Annika proposed to the community to use CONFLUENCE to share data, experience, etc.

- A page was created, also different people from the community tried the tool in the meantime (even if not heavily)
- We want to present what was done and how to use the existing structure also in the future. We will show how to get access (for free) and how to upload information, how to create your own space to exchange specific info with others, etc.
- But besides having a place where we can store everything, and have online discussions, what else does the community want and need?
- Is e.g. a quarterly newsletter of interest?
- Johannes Gutleber can afterwards present on the topic: How do you build a knowledge database for high reliability?

THURSDAY SESSION: POSSIBLE TOPICS

TOPIC: HOW TO EVALUATE RAMI RELEVANT NUMBERS FOR CUSTOM-MADE ELECTRONICS?

Moderators: Ben Todd

CONTENT:

- Analysis (RAMI+ MP) of electronics: how do you approach this?
- How do you achieve high availability and high reliability of such equipment?
- What are best practices and good tools to use?

DELIVERABLES:

- Get collection from audience and get a list of good practices.

TOPIC: BUILDING TOWARDS RELIABILITY (PLANNING FOR RELIABILITY)

Moderators: Annika, Duane

Content:

- What helps build in reliability for new systems or facilities?
- Can we provide insight to the next generation for:
 - Power distribution systems
 - Control systems
 - Machine protection systems
 - Maintenance programs
- Inventory

DELIVERABLES:

- Guidelines on implementing reliability into accelerator and system designs.
- Get collection from audience and a list of good practices covering multiple aspects of accelerator driven facilities.

TOPIC: RELIABILITY & HUMAN FACTOR

Moderators: Annika, Duane

CONTENT:

Prepare details

DELIVERABLES:

TOPIC: HOT SPARE DEFINITION: HOW AND WHERE ARE THEY USED.

Moderators: Annika, Duane

CONTENT:

Prepare details

DELIVERABLES:

TOPIC: GENERATED TOPICS FROM AUDIENCE INPUT

Moderators: ??

CONTENT:

Prepare details

DELIVERABLES:

TOPIC: RELIABILITY USE CASE SCENARIOS TO BE ILLUSTRATED AT NEXT ARW.

Moderators: Annika, Duane

CONTENT:

- Final discussion to see what people are interested in for the next workshop. Collect topics for ARW 2019.

DELIVERABLES:

- List of most interesting topics for next workshop.