Activity

Part A

Read Goerlandt et al (2017), Hugo et al (2018) and Çelikbilek & Tüysüz (2020) and answer the following questions:

1. How do Goerlandt et al (2017) suggest that the validity of QRA approaches can be validated? What did they posit was the most effective approach?

Goerlandt et al. (2017) states the possible methods of QRA validation

   a. Complete Benchmark exercise
      i. Compare with parallel analysis on complete parts of the same system.
   b. Partial benchmark exercise -
      i. Compare with parallel analysis on some parts of the same system.
   c. Reality check -
      i. Comparison of the system under analysis with existing system to learn from them.
   d. Independent peer review -
      i. Examines the Output of the QRA.
   e. Quality assurance-
      i. Examines the process of the QRA.

According to Goerlandt et al (2017) Quality assurance is the most effective approach to validate QRA amongst the methods proposed. As in this approach, the process, i.e. how the data is collected, sources of data, and assumptions of data, are checked. According to the author, these checks would reduce the number of deficiencies in analysis. Quality assurance hence focuses on improving the assessment process and setting more guidelines than the other approaches.
In contrast, other approaches are less reliable as the guidelines between teams may vary across the teams creating discrepancies in the validation.

2. Which techniques did Hugo et al (2018) should be applied to project management? What were their recommendations to increase the use of QR analysis in Projects?
   a. A paper by Hugo et al. (2018) recommends using the Monte Carlo simulation technique to project management.
   b. Recommendations:
      i. Improve an individual's competence through more training and exposure towards quantitative analysis and its tools.
      ii. Improve the organisations maturity levels by spending more time and effort defining core processes required for the analysis.
      iii. Have more resources to carry out the risk management.
3. The last paper reviews various Multi-criteria decision methods (MCDMs) and considered the relative accuracy and validity of the techniques. Which did

they find was the most accurate of the methods compared? What were the failings of the general TOPSIS approach? (TOPSIS is used to choose the best positive alternative by ranking)

a. use weighted Euclidean distances in the aggregation rather than using the weighted decision matrix
b. Topsis method with the different ranking index used
c. Euler distance instead of Euclidean distance
d. Problem: If the data is not spread out in a vertical linear line along the negative ideal solution to the positive ideal solution