11.4 Perform quantitative risk analysis

Numerically analysis impact & probability of risks moved forward from previous process on Project
Is an objective / numerically evaluation

Use this process only if worth time & money
This process means RISK ASSESSMENT

Perform risk identification, qualitative & quantitative risk analysis, & risk response planning

- Involves
  - Further investigation of highest risks on Project
  - Determine type of probability distribution
    - Triangular
    - Normal
    - Beta
- Purpose
  - Determine which events warrant response
  - Determine overall Project risk (risk exposure)
  - Determine probability of meeting Project objectives
  - Determine cost / schedule reserves
  - Identify risks requiring most attention
  - Create realistic cost / schedule / scope targets
- Tools/Techniques
  - Quantitative Prob. & Impact
    - Interviewing
    - Cost & time estimating
    - Delphi Technique
      - Experts participate anonymously
      - Can be used for estimating TIME / COST
    - Historical records
    - Expert judgement
    - EMV Analysis
      - EMV = P [%] x I [€]
    - Monte Carlo analysis
      - Done with computer based software
      - Evaluates overall risk of Project
      - Determines probability of finishing P on specific day / costs
      - Determines probability of activity being on critical path
      - Takes path convergence into account [network diagram]
      - Translates uncertainties into impacts
      - Assessment of cost / schedule impacts
      - Results in probability distribution
    - Decision trees
      - Takes future events into account by making decision today
      - Calculates EMV more complex
      - Involves mutual exclusivity
- Input
  - Risk Register
  - RM Plan
  - Cost Mgmt. Plan
  - Schedule Mgmt. Plan
  - OPA
- Output
  - Updated Risk register
    - Quantified probability of meeting cost & time objectives
    - Prioritised list of quantified risks
    - Amount of contingency time / cost needed
    - Possible completion dates / project costs with confidence level
    - Trends in quantitative risk analysis