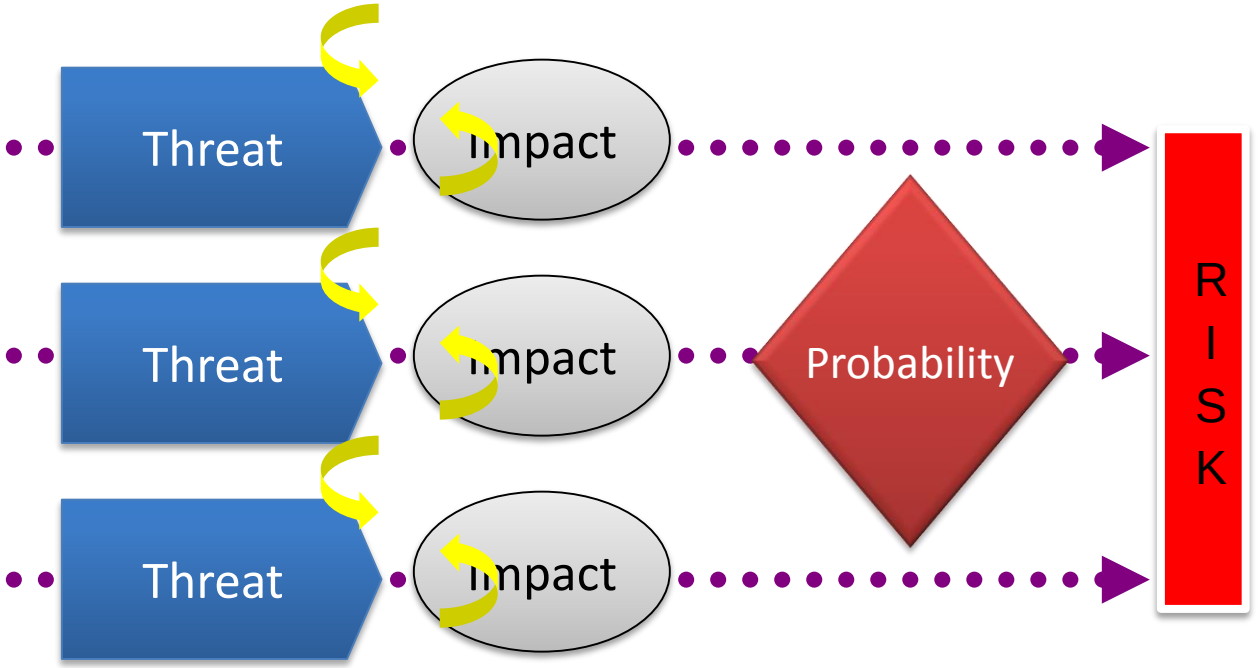
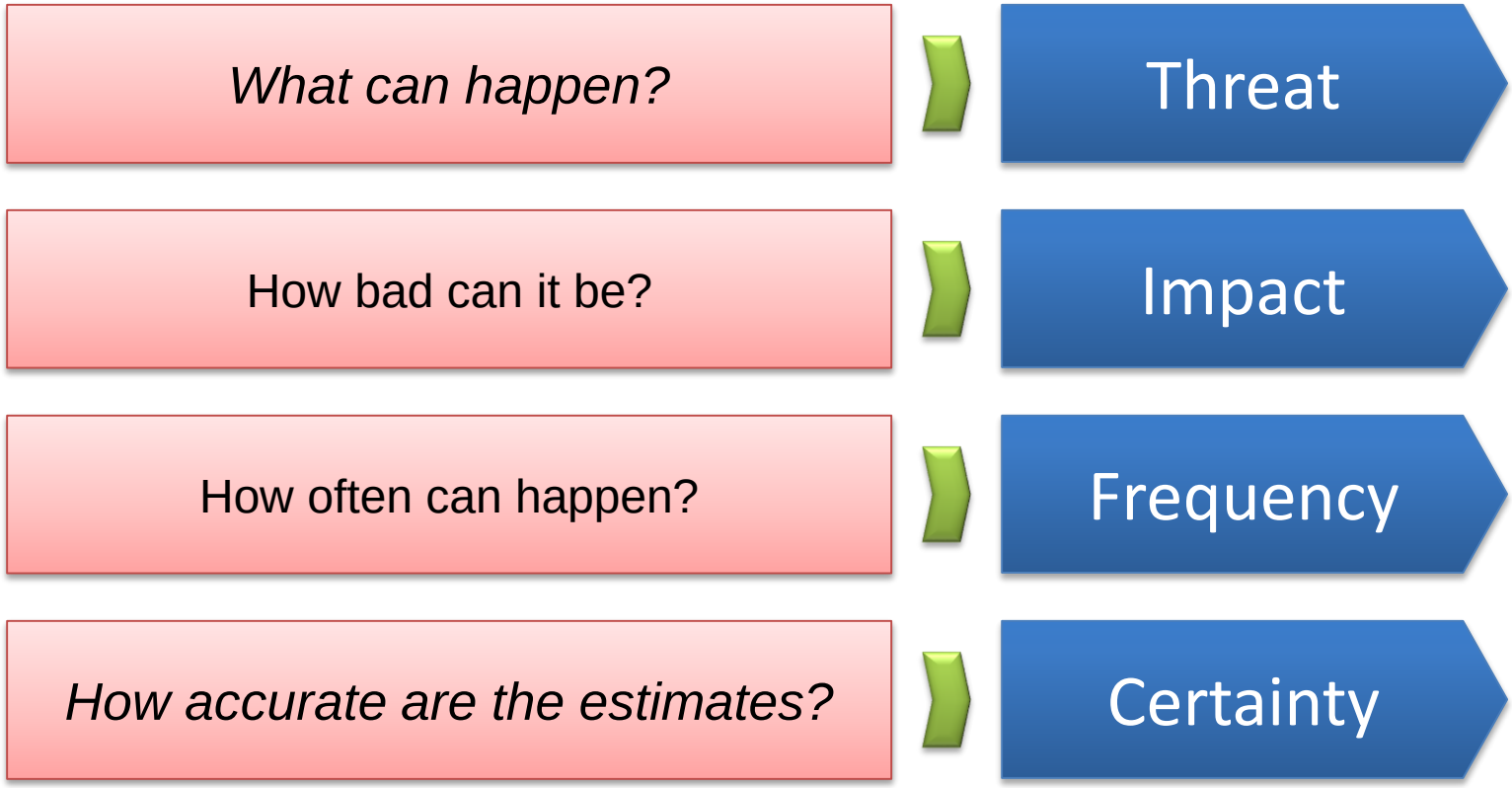
Feedback session: Assignment Block 3

Risk

- Risk is the probability of an impact (damage or loss) on the expected performance of the system



Estimating risk



RoSI estimation

RoSI: Return on Security Investment

- Indicator that measures the relation between benefit and cost of a security investment
- Which of these options gives me the most value for my money?

$$\text{RoSI} = \frac{ALE_0 - ALE_S - c}{c}$$

$$\text{RoSI} = \frac{Risk\ Exposure * \%Risk\ Mitigated - c}{c}$$

How to relate Risk with RoSI?

Annualized Expected losses (ALE):

- Estimates the losses due to certain risks.
- Estimated by multiplying: the annual frequency of occurrence of a certain risk, and the impact that would produce on the affected asset.

  ALE = Impact (Unit) x Probability (annual)
- ALE is applied to two possible scenarios:
  - Without security measures in place
  - With security measures in place

- It seeks to determine the "value" (monetary quantifiable), difference between one and another
- ALE is based on "estimates of expectations":
  - They are usually discrete values with inaccuracies and errors in its determination, which generates uncertainty. For this reason it is often used Monte Carlo Simulation.

ALE estimation

Discrete values

- Original scenario
  - Unitary Impact = $100,000/incident
  - Frequency(annual) = 2 incidents/year
  - ALE_0 = $200,000/year
- Secured scenario
  - Unitary Impact = $100,000/incident
  - Frequency(annual) = 0.5 incidents/year
  - ALE_s = $50,000/year

- $EBIS_s = ALE_0 - ALE_s$ = $150,000/year

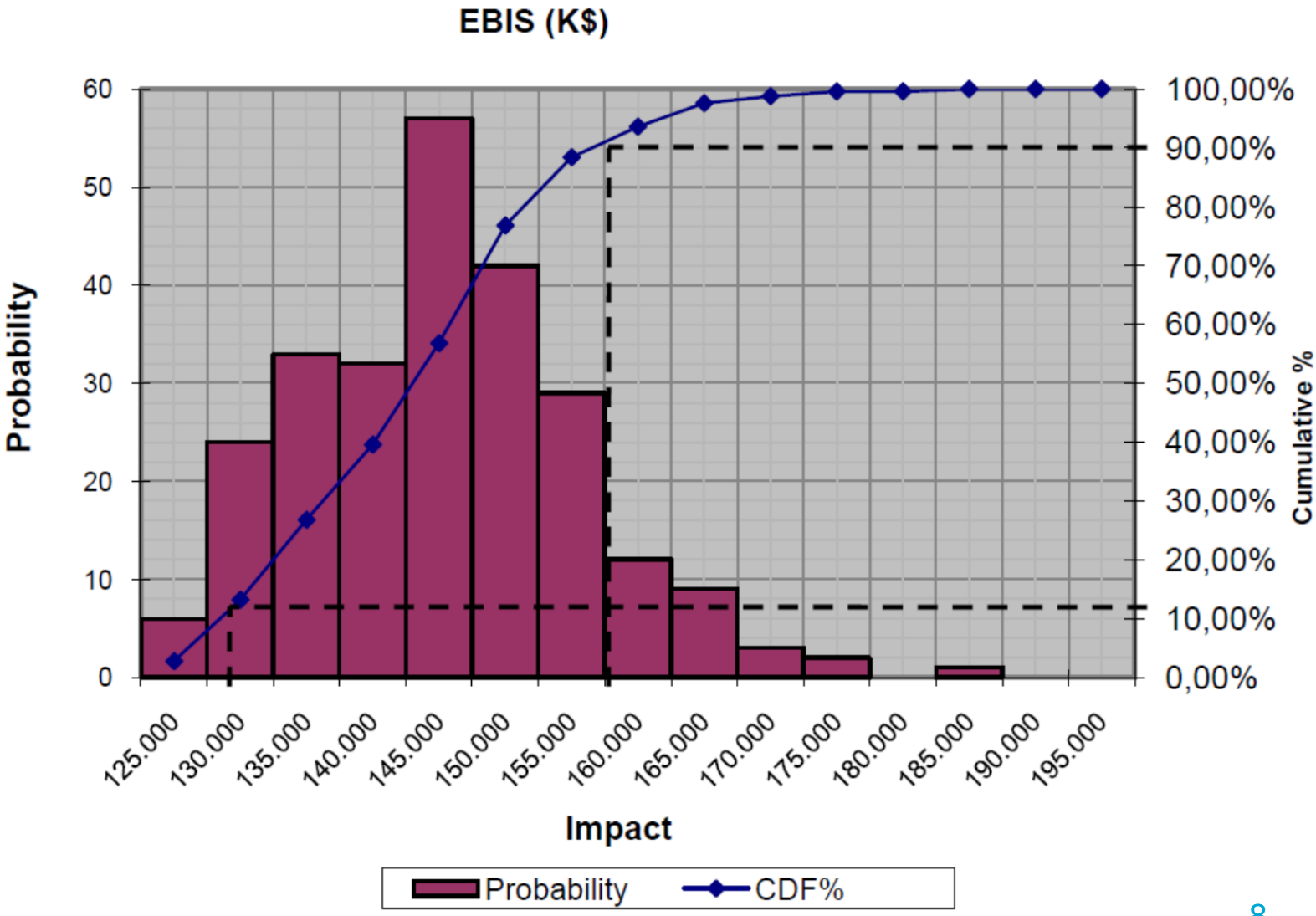
ALE estimation II

Probability distribution

- Original scenario
  - Unitary Impact = $60,000 - 140,000/incident
  - Frequency(annual) = 1-3 incidents/year
  - ALE_0 = $XXXXXXX/year
- Secured scenario
  - Unitary Impact =$60,000 - 140,000/incident
  - Probability(annual) = 0.25 – 0.75 incidents/year
  - ALE_s = $XXXXXXX/year

- $EBIS_s$ =ALE_0 - ALE_s = $XXXXXXX/year

ALE estimation II



Example

Own metrics

- Increase/decrease of C&Cs every month