

## Bayesian Networks

During our research we created two complete Bayesian network models with the tool AgenaRisk. Both models can be opened with this tool and are based on measures of the Standard of Good Practice of ISF and literature research on insider threat indicators.

- Alpha Bayesian Network.cmp
- Beta Bayesian Network.cmp

The beta Bayesian network was used for the validation session at three hospitals. During this session we searched for observations which were entered into the model as shown in the following files:

- Bayesian Network – Hospital A.cmp
- Bayesian Network – Hospital B.cmp
- Bayesian Network – Hospital C.cmp

## Data Breach Assessment

The models should be used in combination with a data breach assessment tool. Those tools can be opened with excel and contain a precise description of how they should be used. The gamma version is the final tool and can be used to assess organizations. The last three tools contain the observations for the three hospitals and their results.

- Data breach assessment – Alpha.xlsx
- Data breach assessment – Beta.xlsx
- Data breach assessment – Gamma.xlsx
- Data breach assessment – Hospital A.xlsx
- Data breach assessment – Hospital B.xlsx
- Data breach assessment – Hospital C.xlsx

## Sensitivity Analyses

To validate the correctness of the Bayesian network models sensitivity analyses have been performed using AgenaRisk. This analysis can be used to determine which variables have the highest impact in the model by selecting one target node and one or multiple sensitivity nodes. When the target node is A and the sensitivity nodes are B and C we can determine whether B or C has a higher impact on A. For each node with a CPT we performed an analysis using its parents nodes as sensitivity nodes. We are not aiming for perfect numbers in the model as it is hard to retrieve them, so we only looked at the order of impact. If the order did not match we changed the values in tables of the target variable until the correct order has been achieved.

- Sensitivity Analyses – Alpha
- Sensitivity Analyses – Beta

## Focus Group

To validate the correctness of the Bayesian network we arranged a focus group session with security and privacy experts. We showed them a presentation and asked for information about themselves:

- Focus Group – Demographics
- Focus Group - Presentation