

WBS 5.4 PM Crosstalk

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Assessing and Managing Project Risk

PMGT 613

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## **Literature Review**

Xhihong, Hongwei, Farrokh, and Yandong (2010) evaluated the impact landslide has on construction projects which require the use of cut-slope grading techniques. Beginning with risk identification, the project was evaluated for probability and impact to manpower and material. The impact was quantified by creating 10 calculation cases (Monte-Carlo Simulations) in which slope material was removed and/or the slope was reinforced. Each case created a unique set of risks related to landslide mass damage, and work casualties.

## **Method**

The Monte-Carlo simulation method can be utilized when projects exhibit the chance that a certain variable might occur. In the case of landslide probability in cut-slope grading, the probability of occurrence was calculated as three distinct variables based on the three operational work shifts. For their use, they decided upon identifying probabilities as P1, P2, & P3. These probabilities take into account the number of personnel working on any one shift, and the likelihood that a member of the shift might be in a position to be harmed by a potential landslide. It is rationally understood that the increased manpower presence also increases the likelihood that a person may become a casualty.

## **Value**

This method allows for the assignment of random numbers for each variable to help ensure each simulation is calculated based on probability and impact. It also allows for multiple scenarios to aid in risk mitigation and/or acceptance. It is possible, with multiple simulations, to

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create a mitigation strategy, based on quantitative assessment, to help reduce risk to an acceptable and less costly level.

### **Textron Aviation Quantitative Risk Analysis**

I'm not sure how Textron Aviation utilized quantitative risk analysis, as most analysis is performed from a qualitative standpoint based on historical performance and accrued expert knowledge. If I had to choose an analysis method I would like to see employed, I wouldn't mind trying Monte-Carlo software. The use of this software will allow for multiple project simulations without having to experiment with the customer's time and money. Each project can be run using known historical data, and in areas where exact data is unknown, the selection of random variables can help fill in unknown areas to help generate solutions to potential problem.

### References

Xhiehong, L., Hongwei, H., Farrokh, N., & Yadong, X. (2010). Quantitative Risk Analysis of Cut-Slope Projects under Construction. *Journal of Geotechnical and Geoenvironmental Engineering*, 136(12). DOI: 10.1016/(ASCE)GT.1643-5606.0000381, 1644-1654.