**CYS 310 Writing Assignment 2: Risk Assessment Approaches**

**By: Kaleb Alstott**

As the network administrator for the U.S. industries, Inc it is an honor to take on the position of working with the U.S. government with this contract and expanding our network. We are expected to have this contract done within 6 months with a total cost of three million dollars. With an expected annual income of 20 million dollars and projected total income of this year to be 80 million, there is a lot at stake here depending on when and if we can get this contract accomplished on time with the correct requirements. To calculate the risks of bringing the project to completion we need to look at both qualitative and quantitative data. I will be starting off with quantitative data of three possible scenarios that can happen with this project. The first scenario we will look at is if U.S. Industries, Inc can complete the project on time. If all goes to plan and we can meet the deadlines and criteria of the contract this would be a zero risk, we expect what we are given which is the 20 million dollars which is 20% premium income which would result in a total income of this year to be 80 million. Now if we can accomplish our goal ahead of schedule by one month, we would be looking at another roughly 6.66 million dollars profit in this first year. I calculated this by taking our annual revenue, which is 20 million, and since this contract is 20% premium to our other sources of income, this amounts to $80 million dollars the company is expected to have in the current year. You take the 80 million and divide it by 12 (12 months in a year) and get roughly 6.66 million dollars per month. So, if we can complete the project one month early, we would be expected to gain almost a 7-million-dollar profit increase. Now if the scenario comes up and we are going to be two months late on the project, we see a major lost in profit. To start off we would have a 2% reduction per month in the overall contract price will be levied on your company, which would look like $60,000 per month we are late. Totaling to $120,000 for two months late that we would have to pay in taxes. We would also not receive the expected 20-million-dollar annual revenue nor the 80 million dollars for this year. We would be looking at roughly a 16.5-million-dollar annual revenue and roughly only 54.5 million dollars total this year (calculations: 20 mil/12 months = 1.66 million per month roughly, 20 – 3.33333 equals roughly 16.5, 16.5 X .2 (20% premium income) = 3.3 X 16.5 = roughly 54.5). With the 54.5 million we do have to pay back the 120,000 dollars lost due to the two months of being late totaling the final yearly profit to 54.38 million.

Now that we have gone over the physical numbers and quantities let’s look from the qualitative side of these scenarios. Below here is a chart we use to calculate on prioritizing the risks that are at hand. In our diagram we have our three scenarios which are represented by the colors of blue, orange, and yellow. Blue being on time with the project, orange being one month early, and finally yellow being two months late on the project. As we take a closer look at the graph, we can see that the x axis is marked with the probability of the risk happening with a zero percent probability on the far left and on the right is a 100% probability. On the y axis we can see the impact level on which a scenario will have, with the lower the impact being towards the bottom at zero and towards the top the higher the impact will be at 100. Looking at the graph we can see that our blue dot, which is our on-time scenario to finish the project, is currently located at around an 85% probability rate that we will finish this on time and there is not really a low or high impact of this risk happening. Next, we look at our orange dot that represents finishing the project one month early. As we can see this has a lower probability at around 40% but the impact level is about 20% because of the increase profit we would be gaining. Overall, this is a low probability with a decent impact level being on the good terms of impact. Lastly, we have the yellow dot which represents our project being two months late. As we can see this is a low probability but if this does happen, we would have quite a high impact level due to the significant profit lost and money we would have to pay, this is on the negative side of the impact level.

High Impact Level = 100

Low Probability = 0

High Probability = 100

|  |  |
| --- | --- |
|  |  |
|  |  |

Low Impact Level = 0

Now that we have went over the following basic scenarios and there qualitative and quantitative aspect on the project, we will add problematic issues to the scenarios such as being on time but not with the required security, being one month early with the required security requirements, and finally being two months late without the required security requirements. Once again, we will look at the quantitative and qualitative aspects of these scenarios. Starting off looking at the scenario of being on time but not with the required security, as before we would be expecting the 80 million dollars as planned but with not the right security requirements, we would be facing the backlash of possible attacks on the companies’ network. With such attacks on the network, we could be looking at losses of anywhere from 10-80 million dollars depending on the severity and how frequent the attack is if not fixed properly. As we can see we would be losing all our profit due to a lack of security that is required by our contract. The next scenario we look at is, being one month early with the required security requirements. As before we can expect a lot of the same profit which is about a 7-million-dollar profit increase. With the required security there is way less of a threat and lower probability of an attack happening on the company and chances of us losing or paying the consequences of an attack. Finally, we look at the scenario of being two months late without the required security requirements. Honestly this is the worst case possible that can happen with this contract. At this point in time, we are already facing the consequences of paying $120,000 dollars back, and our only profit would be the 54.5 million after all the revenue loss with being late on the project. To add on to that not having system requirements can be very dangerous causing a high probability of attacks to our network that can cause hundreds of thousands of dollars lost. Depending on the severity and the number of attacks that can occur we would be looking at a very decremental loss calculating anywhere between 10-80 million if not more.

Now once again we will look at the qualitative data and will be demonstrated in our prioritizing risk chart. Once again blue will represent the on-time scenario but this time with the problem of not meeting security requirements, orange being one month early with the required security requirements, and lastly yellow being two months late without the required security requirements. Taking a closer look at the blue dot which is dealing with security requirement issues but is on time, we can see that this is about a 60% probability but with this being done we are at a 90% impact level on the company showing how dangerous it is to not be meeting system requirements. Next is the orange dot represented as the same as it did in the last graph with a lower probability at around 40% but the impact level is about 20% because of the increase profit we would be gaining. Lastly is the yellow dot concluding our project was both late and did not meet system requirements. As I am confident that this would not happen at a probability of 1%, but the impact level of this would come to about 100%. Due to the company being late and losing out on profit and the increased security risk that is now available due to the lack of security requirements met, we would be facing a detrimental loss to the company not only profit wise but also with our reputation.

High Probability = 100

Low Probability = 0

High Impact Level = 100

|  |  |
| --- | --- |
|  |  |
|  |  |

Low Impact Level = 0

Finally, to conclude the risk of completing the project we have one more scenario in which we will go over with qualitative and quantitative data. This project scenario is if we were to complete the project on time, with the required security requirements, within/on budget, but not meeting the required contractual commitment for service. Looking at this scenario handed, I feel as if the company did not meet the required contractual commitment for service we would simply not be paid for the job and the contract would be handed down/transferred to the second runner-up in the bidding process. Overall, we would lose money and must pay the 3-million-dollar contract and who knows what our annual revenue would look like without the help from this contract. When looking from a bigger picture once again using the qualitative data and our prioritizing risk chart, we could imagine our dot looking like the yellow dot in the diagrams above. We would have a probability rate of about 10% but with an impact level at a 100% due to the money we would lose and must pay back to the U.S government.