Powerup

**Sample Only**

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Final Report

Revision 1

**1. Problem statement and approach**

Powerup, a startup firm, is currently focused on monitoring and tracking residential electricity demand improvements. We have developed a model to analyze monthly revenue generated, based on total energy savings by consumer, cost related to operations and most importantly our net income.

Being a startup firm, it is vital to keep expenses in check. Our biggest problem was

to compile data from our Oracle accounting system and National Grid’s Alpine system. Alpine system is being currently used by National Grid to monitor energy consumption in terms of kilowatt per hour, their changes and trend by each region. We are now tied to this system through a web interface which allows us to download data directly into an excel file and then it can be fed into any operating systems or excel models. This also allows us to watch the live effects of our message and marketing schemes on consumer, mostly in northeast region.

Through this simple but robust model, we are able to resolve the issue by using complex metrics multiplication and Excel capabilities. Our management team has long asked for a report or a model which could help them foresee next 12 months progress. This plays a vital role in company’s growth where a decision is needed on staff hiring, marketing expenses or any other expenditure. In past, our CFO and management team had to manually compare expense and revenue reports to see company’s current financial situation. This model will take minimum efforts from the users and will produce powerful analysis. Our business is fully dependent on how we market our services and relay the message. We have clients in different age group and to reach out every one of them, it requires extensive marketing schemes and expenditure. It was then required to measure the amount of money spent on marketing over total net profit. We didn’t want to commit too much in marketing and have the same or less revenue stream as previously reported.

Today, we have two types of marketing. One would be the traditional marketing where companies advertise on commercial channels such as TV, Radio and newspaper. Second would be to use electronic media and maximize the profit by using channels such as networking online websites and search engines. There is always some risk with both method, commit too much and have less in return, in terms of profit.

With the help of this model, our management team is now able to see the return on investment. Most of our expenses other than marketing have reached a break even point and now we are at stage to truly see the return on investment; in this case it would be marketing.

We have also contacted Blaine’s Consulting Group to find out estimated revenue increments for each dollar we spent on marketing. We have been given a five tier grid to help us calculate expected revenue with increased marketing dollars. Before we could do any of the calculation, we had to pull all of the actual specific data from different sources, such Oracle account system, CRM and Alpine system.

Once we have actual energy savings by each enrolled member in terms of kilowatt per hour, we then calculated energy savings in terms of dollars by using the rate for each state. So far our primary focus is on Northeast states since we have our office in Massachusetts. This has been accomplished by array calculation. Then we extrapolated the revenue which is 30% of the total energy saved in dollars. We then pulled in our actual marketing costs, labor and other overhead expenses from our Oracle system. Just to make the model stronger, we added the ability to add or remove staff by using the staffing grid on the last month to see the effect on the forecast. Most of our other expenses are consistent since we have annual agreements on insurance and rental. Depreciation expense is straight line, most of computer and office equipments have been purchased in past few months. Postage and travel expenses are minimal. The model then produces a snapshot of our actual progress in terms of profit. It is available in the model so management can make comparisons. It should help them see what we have done in past 12 months, analyze the trends and also verify the data that is going to be used for the forecast.

Furthermore, with the help of extensive metrics calculation, the model calculates the forecast for the next 12 months. It takes in to account the total expected marketing expenditure, it also uses the tier to locate the right revenue increments. It then applies it to the revenue from the last actual month since that is what we know can actually be achieved. Labor spent is being pulled from the last actual month and then being applied with 5% increase for future employee raises. It also adds the inflation factor of 2.5%, all listed on the parameter tab, to calculate reminder of the overhead expenses.

The model simultaneously adds the total revenue and cost for the 12 forecasted months and estimates the net income. Our model is simple and has plenty of potential for being used in different high scale analysis in future. The calculation and results are easily traceable, and it offers a user friendly approach to management to achieve their goals. The visibility and straight forward approach of this model has earned it respects and appreciation from our management circle.

**2. Description of scenarios**

Our model runs two scenarios for the forecast to observe fluctuation in marketing cost over projected income.

The major difference between the two models is our approach on how to reach consumers. First one analyzes low marketing cost by using web-based social networking media such as Facebook. It is the most popular networking sites where millions of people, from different age group, sign in everyday and communicate. We figured this will be next best media in future to advertise or relay the message. We are also using MSN website, owned by Microsoft, to advertise our services. We are aware of the fact that not everyone is computer savvy so we may miss a big chunk of our population. But this in return reduces our cost and also falls on the lower tier of revenue increments. It also allows us to see how less we are spending on marketing compared to traditional schemes. On this scenario, revenue is less than compared to the second option but looks to be the most efficient because it gives us the best change to earn net income over one million.

Second scenario explores high marketing expenditure by using traditional media such as TV, radio, newspaper and MBTA adds. It breaks down each category and the cost per add per our agreement with the vendor. Higher marketing expenditure falls in higher tier of revenue increment, thus, giving us more revenue via more members’ enrollment.

Most of our costs, at this stage, are consistent. We have long term lease with the rental property, most of office and computer equipments have already been purchased. We have a very efficient team, with each staff member involve is company’s health. That leaves on the marketing expense which can be adjusted in order to achieve our goals.

Our goal is to make 1 Million dollar in net income for the next 12 months by adjusting all of the variable factors, in this case is marketing. Our management team’s mission is to sign up more consumers, therefore, more energy savings which will drastically improve our profit margin in future. Based on our consumer enrolled analysis, we have close to 4% of total National Grid customer enrolled in our program. We are hoping to reach 10% to 15% of total enrollment in next 12 months by using extensive marketing schemes.

**3. Conclusions of the study**

Comparing the results from each scenarios, it looks we are more efficient in earnings when we use electronic media for our marketing. It gives us enough coverage to meet our goals. As the first scenario calculates a projected net income of $1M and more, we feel pretty comfortable to use Facebook and MSN advertisement to reach out to our consumers and deliver the message. We are also being careful on what months to utilize to emphasize on our message. We are hoping that extra ads in January and May, which represents extreme days in both winter and summer, will help us enrolled more consumers. This is also another added benefit over traditional marketing that we do not have to sign long contracts and set number of ads. Online marketing gives us the flexibility to lower or increase the number of ads.

Although, it can also be seen that traditional marketing yields higher revenue than electronic marketing expenditure, it also yields in higher expenses. With heavy marketing in TV, radio etc, there is a good possibility of more labor need with high expenditure and contract maintenance. It may require more travel cost and training, whereas in electronic marketing, most of the task will be done online with few human interactions. The net income in second scenario still shows profit higher than what was earned previously, but the management runs the risk of more related expenses during the year. We also hope to bring in new vendors in electronic marketing which will put us in driver seat and help us negotiate better rates with Facebook and MSN. They also offer us incentive plans which can help us earn more revenue, but it does require one year of contract fulfillment.

We also think that at some point, due to the advantage of using electronic media, we could easily lower our staff. Currently, our total number of staff is 20; we are carefully watching the productivity and labor need on administrative duties and analyst section to see if a reduction is needed in future.

This model also helps the management to see the trend in revenue earned with the expenditure so at any given point, management can test alternative methods to save more cost and keep higher net income returns.

**4. Budget and schedule performances**

The initial team estimate was not as accurate as we had hoped. We projected to finish the project within 80 hours but we went over the budget by 38 hours. It was mostly due to team dynamics and schedule holidays. We also had some technical difficulties specifically with version control and Microsoft office version. Two out of three team members have Microsoft office 2007 and one member has Office 2003. According to the guidelines, project model and documents are all supposed to be in Office 2003, so we had to take extra steps in saving files in Office 2003. We tested our documents and models in both versions and finally saving it in the appropriate version. We also did not have a shared place where we could have saved our work and have it available to all members at all times. We had some issues with emails, some members have email accounts in gmail which was giving us problems. Team members have complained of not receiving emails on timely manner, so we had to re send emails on several occasion and lost precious time. Usually in an office environment, we would have a network which would be available to all employees at all times. We could have used file sharing on Google web account but some members had issues with the file sharing in past. We ended up emailing files to each member whenever we made changes.

We also did not account for Thanksgiving holiday in our scheduling. Two out of three members had prior commitment with families, so they were away during this week. Our initial modeling was delayed due to this issue. Since every member took time off during the week, it took us sometimes to get back in the project mode and start chasing our milestone.

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| --- | --- | --- | --- | --- |
| Task | Due Date (Budgeted) | Due Date (Actual) | Time required (Budgeted Hrs) | Time required  (Actual Hours) |
| Planning | 10/25/2009 | 10/25/2009 | 20 | 20 |
| Modeling | 11/20/2009 | 12/10/2009 | 25 | 38 |
| Documents | 12/17/2009 | 12/17/2009 | 20 | 40 |
| Execution | 12/13/2009 | 12/15/2009 | 15 | 20 |
| Total Hours |  |  | 80 | 118 |
|  |  |  |  |  |

Our initial planning was right on target which was due to the great idea and real life scenario by one of the member. It seems like we already had all the ideas and plan were in place before we started the project. We projected to finish planning in 20 hours and actually finished it budgeted hours. Modeling, as described above, was delayed due to technical issues and version control. We projected to finish modeling in about 25 hours but we realized that it was underestimated by 13 hours. Each member has a full time job and is enrolled in multiple classes. The milestone for project model was conflicting with other class deliverables and examination. We luckily realized these issues soon after the Thanksgiving break and started pondering on different aspects of the model. We also ran in to limitations which were given to us in the project guidelines. We were not allowed to use any excel capabilities outside the course, which resulted in more time being spent on the multiplications. We could have gone over our budget by more than 13 hours if it wasn’t for lab and classroom practices and hands on exercises. We quickly developed all the calculations and references.

For documents, we actually divided the team by each task. The initial documents like proposal and midpoint status report were done with each team member working on their allocated section. The final three reports were allocated to each team member so they can focus on individual reports. The delay was due to the conflict and changes with the model. While our team members were working on the final three reports, we were also making changes and updates to the model which required updates on all reports. We then assigned each team member to proofread each other’s work and make changes and suggestions. We also ran into difficulty where a section in the model was done by a member but the user guide or reference guide was done by another member. It just needed extra time to explain members of the model mechanics. We can’t really think of a better way to tackle this situation. As we know, one member can not develop the model and then assume other team members to write the user and reference guide. It all needed time and some weekly meetings. Most of our members were very punctual with team meetings and responses. We also came across several situations where the team members thought that minimum requirement on the page count was few pages less. We underestimated on how much we had to write and at the same time, follow the guidelines. The main reason behind the overage was the material required and constant updates in the model.

We took extra 5 hours in execution and testing compared to our projected 15 hours. It was though very beneficial to the whole project. It really helped us point out the holes and issues in the model. This was the main driving factor behind the constant updates to the model.

At the end, the team took additional 38 hours over the budgeted time. However, we as a team are well satisfied with our work and tools that we have learned during the course session and modeling.

**5. Lessons learned**

The main purpose of this exercise was to produce a working model while functioning in teams. It is very important to learn and understand each member’s style, skills set and their preferred interactions. It could be challenging and can turn out to be a nightmare if team members don’t click with each other and respect their work. There are a lot of lessons learned from this experience as we think back and reflect on the problems and their possible causes. It is helpful in real life scenarios as well to think back and try to eliminate problematic moves or tasks and avoid it in future. It makes us more efficient and productive.

Choice of problem: we think that the choice of our problem was excellent. It was provided by one of our group member and we all soon agreed to this idea. It is a real life scenario and beneficial to our environment. We have to drop our energy consumption so we can save our planet. While researching for the project, our team members discovered so much information about the energy consumptions and its aftermath. We also discovered that there are currently few incentive programs out there which are helping consumer drop their energy bill. One thing we regret was to take this problem to an international level and show its effect on our planet. We could have done some analysis to show how our earth will be benefited by the drop in energy consumption.

Design: We are very pleased with the design of our model. It would have been very interesting to make our model a little more complex, introduce other parameters and analyze consumer behavior under different scenarios. However, for the purposes of this course, we had to keep it as simple as possible and not to cross the model limitations.

If we were to do this project over again without time and tools limitations, we would be very curious to introduce some other input and output streams to show the effect of energy saving on the global environment and other regions. While working only with course material, it did force us to dig further into each excel functions and utilize its maximum potential. We now see ourselves using these excel functionality on regular basis.

Team dynamics: We were lucky to have all members of the team on the same page on most of the project tasks. We all have full time jobs and understand each other availability. We also understood each other skill level and planned each task carefully with member’s specialty. Where ever we had lack of skills, all members of the group pitched in to finish the job. We all have worked in bigger teams and really enjoyed working in smaller team of three. It does save lots of time and avoid arguments.

Organization and management: During the project process, we realized the need for a coordinator. This would have saved our initial group a lot of time as it would have not only guided the group but would also prevent us from non productive meetings. We also realized that we had plenty of discussions during our meetings but we never put anything on the paper until the last few weeks of each milestone. It would have been beneficial to us if we would have developed or put something on a piece of paper and tracked what we have talked about previously. As far as the accountability by each member, we were lucky to have everyone responsible for their tasks.

Budget and schedule performance: As discussed earlier, we were over by 38 hours in our budget and milestone delivery. This is mostly due to Thanksgiving holiday and constant updates with the model. We learned the lesson to carefully review each task before diving into to solving it. We were too quick to start working on the model instead of measuring how long each task will take so we can schedule each task appropriately.

We all had our midterm and finals during this project and it affected our delivery dates.

Use of technology: A lesson learned is to use every possible technological means of communication and collaboration available. It really helps to avoid any technical difficulties and delays. Our biggest problem was the version control. It would have been nice to have a shared network or file sharing. We should have used Google file sharing even though some member had issues with it in past. We also learned that by having the class forced to save their work in office 2003 is actually a real life requirement. Some government proposals also required that the bids and responses to the bids are to be submitted in a specific version and document format. Anyone who deviates from the basic requirement gets eliminated in the first round. It really felt like a real life scenario while working on the project with required guidelines.

Overall, the whole project was very beneficial to each team member. We learned how to work with other people in real life with different background and skills sets. It really pays to work in team and help each other. It makes us more efficient and productive.