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**SCSM 350**

**FINAL PROJECT**

**1.** INTRODUCTION

**1.a.i.** OPERATIONS STRATEGY

Operations strategy is a notion that reconciles short term and long term objectives within a business. Operations are daily to-do's that a firm conducts in order to keep up with its business. A strategy, on the other hand, is a perspective of how success should be achieved over the long period of time in a company. By combining the two, we get the total pattern of decisions that shape the capabilities of an entire firm. In simpler terms, operations strategy helps align the things that the personnel does on an every day basis with whatever the vision of success, or the mission of a company is. It also helps establish an ongoing reconciliation between market requirements and operational resources, which is important for any company that wants to make clever strategic decisions.

**1.a.ii.** THE SLACK & LEWIS OPERATION STRATEGY MATRIX

The methodology used to analyze this company's operations strategy is called the operations strategy matrix. Presented by authors Nigel Slack and Michael Lewis in their textbook, it is an effective tool that helps bring together the two perspectives: that of operations resources and that of market requirements. It describes operations strategy as the intersection of the company's performance objectives with its decision areas, and should be able to explain how the former affects the latter. That said, not all of the intersections sohuld necessarily be of equal importance. The matrix helps to uncover the issues that have to be addressed in an organization.

The rows of the matrix are represented by operations objectives. In short, the objectives we use can be described as follows. Dependability reflects the ability of the company to keep its delivery promises. Quality reflects how good the company's ability is to produce to product up to its specification. Speed is the relative time it iakes to complete a function of business, or conduct one cycle of business; it can specify the lead time, or responsiveness. Cost reflects how expensive it is to conduct the business. Flexibility is a measure of adaptability of a business to its market environment.

Columns of the strategy table reflect the decision areas that the objectives are plotted againts. These decision areas are the ones commonly used, however different companies may use different decision areas based on their current needs. The areas we will use in this analysis include capacity strategy, supply network strategy, and process technology. Capacity strategy concerns how the facilities in general should be configured; it answers the question of how many sites the company should have, what their size and location should be, how should the capacity expand, and so on. Supply network strategy reflects how the company's operations are influenced by its network of suppliers. It answer the questions of how many suppliers a company should have, should we produce more in-house than outsource, and what are the appropriate ways to manage our supplier relationships.

The cells in the matrix reflect the operations strategy itself. The show what decisions should be taken in order to satisfy the company's objectives. To have this visual is helpful when trying to reflect the company's strategy in its operations. It helps align short-term goals with long-term goals, providing space for a comprehensive organizational strategy.

The matrix should be carefully reviewed by the top maangement as well as each department that in concerns. As the company's understanding of these issues and their interconnection evolves, the matrix may be updated for a more efficient use. The operations discussed should be tailored to reflect the organizational goals, meanwhile maintaining their ability to reconcile between the function's resources and market requirements.

**1.b.i.** THE FFP COMPANY

The Free Flow Power Corp. [further, «FFP»] is a daughter company of the US Renewables Group and the FFP New Hydro, LLC. The Free Flow Power Corp has been established ten years ago for the purpose of building new dams that would produce hydroelectric energy. Several years into the process, it became clear that the idea was not going to prove profitable. In response to this information, FFP decided to re-focus it's business. Free Flow Power became a business developer of hydroelectric projects. Most of its assets were owned (invested in) by USRG. FFP's main occupation consists of researching dams that were built for a specific purpose (navigation, irrigation, or flood control), that are currently unpowered, and developing these facilities. Most of these dams are owned and operated by the U.S. Army Corps of Engineers. FFP finds the most convenient locations that are eligible for the low-impact hydro development (standards defined by the Low Impact Hydro Institute, LIHI), then makes proposals to the USRG for funding and sources potential power byers among energy generation and transmission cooperatives. The co-ops, in turn, sell power to the end customers, that is people who use the public utilities.

**1.b.ii.** INDUSTRY

Hydropower is a part of the renewable energy mix, and is the oldest «conventional» source of renewable energy. Hydroelectric energy industry is closely tied with the renewable energy market. In 2012, The estimated renewable energy share was 19% of of final global energy consumption. Hydropower constituted 3.8% of it, third largest after traditional biomass (wood burning) and geothermal1Hydropower in the US has a long history. In 1920, 40% of all power produced in the US was hydroelectric.

Hydropower requires a lot of capital investment. FFP makes invetment proposals to USRG, as well as other smaller investors, about reconstructing the entire dam in order to renew old machinery and strengthen the base of it. Sometimes it involves adding a lock. Although the reconstruction processes involves a lot of capital expenditure, the life span of a dam is superbly long and the minimal serving age is 40 years (for hydropower generation facilities projected, engineered, and constructed according to the FERC standards). The supply chain for completing hydropower facilities is relatively straight-forward, most materials can be sourced either locally or internationally. The main objective in case of sourcing the water turbines is to find the manufacturer with the optimal trade-off between quality and price. FFP prefers to source its turbines from manufacturers in China and certain parts for it in Denmark. The parts are then delivered to the US by water transport.

1REN21, Renewables 2014 Global Status Report.

**1.c.i.** STUDY GOALS

The goal of this study is to formulate the optimal construction of operations for a company such as Free Flow Power Corp. This organization is interesting because it works with assets that are owned by their investor in order to sell the later-produced energy output to a third party, while making money on their development services. The desired result of optimization of these processes is increased value of FFP’s development services as well as increased demand for these services. Operations considered include financials, project management, outsourcing to contractors, and product development.

**1.c.ii.** ASSESSMENT, ANALYSIS, & STRATEGY RECOMMENDATION

The assessment of this study includes weighing various operational and strategic objectives against decision areas within certain strategies. The strategies are then scored at their conformity with the objectives. All three strategy tables are then consolidated into a strategy table of strategy tables, which is designed to produce one comprehensive solution based on all previous analyses. In the case of Free Flow Power company, the eventual scoring against operational objectives looked like this:

Meanwhile, scores for the strategic objectives looked like this:

…Putting the strategies of dynamic explorer and of people pleaser at different winning positions. This can be interpreted as follows: the strategy of dynamic explorer follows the representation of Free Flow’s development business as it is at the moment, and therefore is more aligned with company’s overall objectives to make their business more efficient. Simultaneously, by following the strategy of people pleaser, the company might be able to achieve higher compliance with each specific operational objective.

**2.** ASSESSMENT

**2.a.** FFP ORGANIZATIONAL OBJECTIVES

Free Flow Power Corp. is dedicated to delivering the best service to their customer. In order to make it happen, they align their organizational strategy with the following performance objectives:

**Dependability**: For the Free Flow Power as a developer of hydroelectric projects, the ability to keep delivery promises is critical. The success of operations of a project-based company is highly dependent on management’s ability to coordinate timely delivery, construction, and service deployment (meaning that a plant’s ability to respond to projected demand is just as important as project coordination).

**Quality**: Quality is a multidimensional issue for a hydroelectric developer. As an energy project developer, FFP has to deal with many regulatory agencies. Considering the length of the application process and the long time that the approval takes, it is important to conduct very scrupulous work on all legal documents. Conformance quality is defined as the company’s ability to produce consistent background support for all operations that are required to complete a project. Specification quality refers to the ability of the company to secure all the necessary materials in order to execute a project in a way that it would be able to fulfill the customer’s needs. The expertise of employees and careful consideration of tasks in hand ensures that the product – the plant – is fit for a specific purpose, and will be producing electricity as planned.

**Cost**: Hydropower is famous for its capital intensiveness. Cost is the first most important consideration as it is critical in determining whether the project will be able to secure investment financing for initial funding. Simultaneously, it is important to consider costs versus payoffs as this is a measure necessary to secure interconnection partners later on.

**Flexibility**: Flexibility is an important measure of company’s mission. Some plants can have multiple purposes for their existence: if the river has river transport, the facility will most likely include a lock and a dam in order to help navigation. Some regions are susceptible to flooding and droughts, and some systems (usually impoundment) have controlled water release that helps local population avoid systemic pressure on their environment. The fact that these systems have multiple purposes may sometimes mean that the energy production is more intermittent in these areas, rather than in the areas of diversion (run-of-river) plants. FFP has to make sure that it is able to deliver a consistent energy output to ensure highest possible return on investment, which attracts investors. In this case, large product flexibility *does not* help FFP deliver a consistent output that helps meet demand [lower flexibility 🡺 higher score]. In case of service flexibility, however, it is FFP’s ability to coordinate between multiple parties of the project in order to make it happen that is in focus. In this case, larger flexibility is a bonus.

**Speed**: Is an important objective for FFP’s customers. It designates the time of the project completion: the time that has elapsed from the beginning of the project until it’s disposal. At FFP specifically, speed is defined as a time from the filing of the first license application until the beginning of energy production. This process takes 5 years on average.

**2.b.** MEASURES FOR OBJECTIVES

|  |  |  |
| --- | --- | --- |
| **OBJECTIVE** | **WORST 0% CASE** | **BEST 100% CASE** |
| dependabilty | has to push back deadline repeatedly | able to deploy on time |
| quality | plant break down immediately | plant works as scheduled, at capacity |
| cost | american made turbines | chinese best quality |
| flexibility | perpetual negotiation | speedy reconciliation |
| speed | project deadline undetermined | on schedule, like a clock |

**2.c.** FFP GENERAL NEEDS

|  |  |  |  |
| --- | --- | --- | --- |
| **OBJECTIVE** | **WEIGHTS** | **RAW WEIGHTS** | **SCORES** |
| dependabilty | 20% | 60 | 0,9 |
| quality | 23% | 70 | 0,78 |
| cost | 26% | 80 | 0,67 |
| flexibility | 15% | 45 | 0,7 |
| speed | 16% | 50 | 0,85 |
|  |  |  |  |
| **Total** | **100%** | **305** | **0,774** |

Cost is perhaps the most important operations objective for a hydroelectric development company since hydropower is notorious for its capital intensiveness. In order to be able to offer a good payoff to shareholders, FFP needs to figure out the lowest possible cost for construction. And to attract interconnection partners, the cost per KW-hour should be competitive with that extracted from conventional energy sources.

Quality is important as it makes or breaks the business. The quality of constructed facility defines how long the plant will operate without major failures, and ensures that is operates at capacity without a problem.

The ability to deliver energy to the grid is the main purpose of a hydropower plant. Dependability comes third because it does not interfere with the initial stages of the project as much as it may with the phase near completion. Dependability is critical for FFP in order to maintain its clientele and satisfy existing customers.

Flexibility and speed share the last spot. Speed is a relatively important objective, given that the demand for electrical energy under current conditions grows indefinitely. However, hydropower plants take a lot of time to construct, and even more time to legally reconcile. Different studies and agreements take years to process, and this does not differ from one developer to another, it is a given fact. Managerial and project flexibility are also important when it comes to defining what functionalities a plant has to have, and what features potential investors would like to have incorporated in it.

**3.** DECISION AREA ANALYSIS

**3.a.** CAPACITY STRATEGY

The company is facing decisions about what kind of business it will be conducting. It can choose to develop large scale or medium scale sites, or do the micro hydropower plants for individual household usage. All of these have their advantages and disadvantages. Large-scale sites can be beneficial for power cooperatives that are looking to diversify their energy mix without a necessity to manage multiple sites, however they can be extremely expensive to develop initially, require large upfront investment. Micro plants are a great way to diversify this development business, but require a completely different process technology and thus would be expensive to develop (although it is a great potential expansion opportunity).

Given the capital investment needed for the construction of a large-scale power plant, it would probably be one big project that the entire company would have to throw all their forces onto. It would have to be located in a place where the water with the help of gravity is creating a ferocious force, like a wide and deep riverbed or a waterfall, which likely means a remote location to access it. The technology that is most likely to be used in this case is called impoundment – which uses a dam to store3 the river water in a reservoir that is later released through the turbine.

For a company to create a good addition for the local energy mix, it would be enough to finance and develop a plant that capacitates anywhere between 3MW to 7MW2. A plant with a capacity of 3MW can power up to three thousand households annually, which means that one small-impact hydro plant can power up a whole town. These small production plants can usually be located at several points in the flow of one river, that is, they are located in clusters. That is more convenient for an interconnection partner, as they harvest more energy in total from a few points down the river, and may power up a few settlements down the stream without having to transmit the energy far away.

An important consideration for a renewable energy provider is the way it meets demand, or its capacity to meet demand. Energy is a resource that allows all basic human needs to be satisfied, and it is incredibly important to have a power source that meets demand.

The size of the facilities, as well as their location, play a great role in a way they meet energy demand. Large hydropower plants that are located in a remote area are most likely to be interconnected to a part of a grid that does not go through too many settlements. Given that the power is supplied to a municipal or a regional grid, it is simply redistributed later on to parts of the grid where it is currently needed. Also given the large output of such a facility, it is most likely that it would lead demand. Renewable energy sources are generally not accepted as a base load power4 sourcesgiven their intermittent nature, but a large hydro facility can easily cover for the daily fluctuating demand.

Local hydro plants with a capacity below 10 MW are likely to be used as a foundation of local “greening” initiative. As such, they are given a responsibility to feed most of the local needs. Given the fluctuating nature of demand, small hydropower is likely to cover most needs, although it would still be required to have a specific amount of conventional energy resource on hand in order to meet the fluctuating demand and exclude the possibility of power outage.

Micro hydropower plants, given that they are designed to supply the needs of one specific household, are most likely to match the demand by meeting all the energy needs of one (or two) house(s).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Strategy description | Size of plants | # of sites | Location | Facility | Capacity | Timing |
| large energy supplier | Large hydropower | One | remote, singular | Impoundment | over 10 MW | Lead D |
| addition to local energy mix | Small hydropower | several | clustered along the river | Run of River | 5 MW | Lag D |
| B2C clean energy provider | Micro hydropower | many | backyard | Unique | under 3 MW | Match D |

Capacity strategy is designed in order to figure out which would be the best way to satisfy all organizational objectives. This chart shows that the most comprehensive solution is the strategy of *addition to local energy mix*:

1Hydroelectric power plant capacity is the maximum energy output that can be produced in a single unit of time. By saying *this plant has a capacity of 30 MW*, we mean that this particular plant can produce a maximum of 30 megawatts of electricity in one hour.

2Technically, any hydroelectric power plant that has a capacity under 30 MW is considered small-impact, however the kind of environmental consequences that such a plant could cause are substantial. The standards for small-impact plant recognition are defined by an organization called LIHI, Low Impact Hydropower Institute, and are rather vague. The assessment takes place on an individual basis, based on the number of studies conducted for each specific site. These studies include Water Quality Assessment, Wildlife Assessment, Cultural Heritage Assessment, and so on. Typically, the hydropower plants that produce least impact on the natural habitat around them do not exceed 10MW capacity.

3Many skeptics argue that clean energy cannot be used solely without backing it up with at least some conventional power source plants. The argument is that the renewable energy production has intermittent nature, and when the sun does not shine and wind does not blow, people still need to shower. Hydropower took care of that, too. The way to eliminate the need for conventional sources is to use pumped storage. It works like a battery, storing (pumping up) the water during low demand, and releasing it during high demand or emergency situations.

4Base load power sources are those that can generate dependable power to consistently meet demand. Baseload requirement is the minimum level of demand on an electrical supply system over 24 hours. It is the foundation of a sound electrical system.

**3.b.** SUPPLY CHAIN AND PROCUREMENT STRATEGY

Free Flow Power is an upstream services company sources globally. FFP is working with a few equipment suppliers in China, which produce water turbines and some other large-scale equipment. However, all of the small electronics is purchased in the United States, from US producers (although the details are manufactured outside of the country). Free Flow Power re-constructs the sites, and also connects them to local grid, by installing generators on the bank and stretching the power line to the existing grid section. After that, the energy is accounted for by the power cooperatives and distributed to the end user through the utilities/grid operator.

All of the development planning, engineering, legal issues, management and financial issues are taken care of within FFP as a site developer. Project management needs all of this to be done in-house in order to minimize the time it takes to have the plant up and running. The manufacturing and construction are outsourced, as is power distribution. Operations and maintenance of the facilities, however, are done by FFP.

The supply chain balance in FFP is shifted towards the contracts side. Over the past ten years, the company has worked with multiple Chinese and European suppliers, but only recently it has identified the ones with the perfect ratio of quality to cost. Establishing trust in a professional relationship takes time, and FFP is hopeful that with their current suppliers, it will be no problem. Simultaneously, the relationship with US Renewables Group, FFP’s main investor, is based on long term financing contracts and short-term project management contracts. When the developer is looking for funds, they can always rely on USRG to provide “initial investment agreement” which may be used to attract more investors and grant funds. FFP and their interconnection partners operate through the unit rate contracts.

Supply chain dynamics is an interesting issue for Free Flow. Because the company does not require any consistent inflow of raw materials, it is not a subject to supply fluctuations, upstream wise. All of the company’s equipment is unique, designed and manufactured to order. Upon project completion, the plant works to supply the electricity demand for the grid. For FFP’s customers, the power cooperatives, it is critical to manage the qualitative supply chain dynamics properly in order to meet the demand for electricity. Free Flow is responsible to ensure that the plants work as well as they can, satisfying the quality objective as well as customer needs.

Supply chain strategy helps FFP align its course of business. Thus, different supply chain strategies may help shape a business that the company wants to conduct. More precisely, there are a few things to do with a hydropower plant. One company may either buy out a site, reconstruct it, and sell energy to a power cooperative, and operate this specific site for an indefinite amount of time, earning money on power generation1. Or, it may want to focus on accumulating not only this hydropower plant, but also a PV panel site nearby, and maybe just one turbine – all in order to accumulate enough potential baseload energy in order to secure future municipal supply2. Or, as FFP does now, the company may want to just be a developer, which entails discovering new sites, making them work, and selling out the generated supply to power cooperatives, meanwhile offering operations and maintenance services to the interconnection partners.

1Focus on generation.

2Focus on end customer.

Here is what some of these strategies look like:

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Strategy description | Kept in-house | # of suppliers | Investment in self | Information sharing | Interconnection partners | Geography of suppliers | Vertical integration |
| resource manager | nothing | several | some | some forecasts | few | distributed | none |
| generation giant | a lot | one | high | only by request | few | near | one stage back |
| king of the grid | some | many | none | open books | direct sales (zero) | distributed | one stage forward |

Weighing the strategies against the objectives has given us the following results:

This, in total, makes the recommendation for FFP to switch from development business to a business that would be more focused on the end customer, the direct consumer of electricity. It is important however to look at the comprehensiveness of the strategy:

We can see that *focus on the end customer* indeed has the highest possible dependability score, which is an important objective for FFP to satisfy, however the *focus on development* strategy is more comprehensive, given that it satisfies every other objective with a higher score. This data suggests that for FFP, the end-users of electricity would be a better customer than the power cooperatives are now. It also means that FFP would have to switch to a different mode of business and different supply chain: find even more investors that it has now and start accumulating other energy generating assets. This quantitative suggestion to change the strategy is in part due to the fact that it is easier to serve independent people who are connected to the grid via the multiple energy resources, than it is to sell the energy from one specific intermittent power source to a power cooperative. The first solution that comes to mind is to make the plant produce more power. More power – more investors! However, it’s impossible to make all rivers flow big and fast. Perhaps, FFP could work with its suppliers to minimize the costs, and with their interconnection partners to up their prices.

**3.c.** PROCESS TECHNOLOGY

Process technology is how the operations will be conducted and what technologies will be employed to create the final product. It is important to think about how much to invest into the process technology, given the high cost of capital. For FFP, the process technology that has coordinated the development of a specific project is one thing, the process technology that has made the plant viable (construction) is another thing, and the process technology of connecting the electrical output with the final customer via the grid is yet another thing. We will review general characteristics of process technology that may apply to each of these categories, but will focus mainly on the process technology of project coordination and management, as that is FFP’s direct line of business.

The capacity of the technology to process work is its scale, or scalability. In terms of scale, all of the hydropower technologies take up decent amounts of space and generate moderate amounts of energy. Scalability is a more relevant term in regard to hydropower. There is a limited amount of water body available on our planet, and we can’t use all of it for power generation because we would have to completely endanger some water species, and perhaps some people would like to hang out on the beach sometimes, and we also would like to be able to continue marine operations around the world. There are different ways of harvesting hydroelectric energy, but the way that FFP does it, the technology is not easily scalable due to its high cost as a very specific positioning.

The degree of automation is to what extent the process technology carries out activities or makes decisions for itself. Hydropower dams generate energy themselves, without raw material input. They are specifically constructed for continuous power generation with least amount of human labor necessary to keep it maintained. They are designed for converting kinetic power of flowing water through a converter (turbine) into electric power on site, and the electric power generated is then transported on to the river bank via cords. These devices do not require any extra energy in order to function, they are pure “harvesters”. The only human form of intervention comes in during the rare O&M procedures and when the generated power comes on grid. The degree of automation required for power distribution is very different. The entire grid, that covers thousands of miles of soil, is operated through strategically placed distribution stations, of which there are few. The grid is equipped with sensors, which transmit the data to the distribution centers, where operators then decide how much power to allocate to each particular region. All in all, it is a much more labor-intensive activity. The analytical content of this part of the business is higher then that of the energy production itself. The electricity generating facilities may be equipped with data collecting devices. The information that these stations can in turn provide can vary widely in its application: the speed of the water, its temperature, chemical composition, etc. can be used for industrial as well as research needs. The amount of power generated can be indicative of the speed of the water, harshness of weather conditions, and in case of osmotic technology – salinity and chemical composition of the water.

Coupling, or connectivity, is a degree to which the technology is integrated with other technologies. In this sense, FFP as a developer has to have a very high degree of both connectivity and coupling, because it has to coordinate between power generation, provision of development services, and grid interconnection. Coupling refers to the degree of physical integration of the company’s resources, while connectivity refers to the company’s ability to manage everything precisely, meaning the one changed variable will automatically (and easily) change the other variable (as in, when there is excess demand for electricity, the O&M team can remotely open up the tap so that the flow is heavier in the turbine, and more electricity is produced), it’s a degree of ‘connectedness’ of different parts of one coupled technology, or how many variables you may change from one remote control station.

ERP, as well as project management software, are the two most important part of the FFP’s development business. Enterprise resource planning is a software program that helps the company to store all relevant information in one place, and allow for that information to be integrated, in order to make informed planning and control decisions. All the inputs are entered manually only once. The idea is that integrated together, this data becomes information that must later translate into reaching the desired output. An ERP system would help FFP with their supply network management by reducing costs and risks of potential mistakes, miscommunications, and such. It would also generally speed up lead times and order processing.

Here is a short1 example of strategy solutions for the process technology:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Strategy description | Coupling, physical | Connectivity, management | Connectivity of information | Supply network integration |
| vertically integrated | Tight integration | Some | ERP | None |
| development-centered | Independent | None | PM | High |
| efficiency king | Some flexibility | Advanced | ERP + PM | Some |

1Please view the attached .xls file for a more elaborate strategy solution.

By looking at the radar chart of balanced weights for this strategy, we may see the following:

Development-centered process technology strategy is narrowly beating the efficiency king strategy. Importantly, the Red strategy is more cost efficient. The Green strategy offers the users to implement both the project management software and the enterprise resource planning system, which may take up a significant time and amount of labor. Simultaneously, Green gets a high score on dependability because this strategy offers a great improvement in supply network relations. Green and Red strategies come in a narrow.

**4.** REALIZING THE STRATEGY

**4.a.** SYNTHESIS

Overall strategy should look as follows:

|  |  |  |  |
| --- | --- | --- | --- |
| Strategy description | Capacity | Procurement | Process Technology |
| dynamic explorer | B2C clean energy provider | resource manager | efficiency king |
| asset accumulator | large energy supplier | generation giant | vertically integrated |
| people pleaser | addition to local energy mix | king of the grid | development-centered |

Each strategy supports a specific theme. The dynamic explorer leans towards maximum mobility, maximum output efficiency, and balanced capital intensity. The strategy involves FFP going into the business of micro hydropower plants, providing little energy generation stations for individual use in households. The ability of a company to manage their few distributed suppliers is supported through a joint use of ERP as well as project management software, and in this case FFP simply provides its development service on per order basis.

Asset accumulator strategy suggests that FFP may move into the business of energy generation, and potentially become either a power cooperative or simply a large energy-producing holding (since not all the power sources have to be the same). This strategy suggests that the best course of action for FFP is to internally produce as much energy as possible, by buying up energy generating assets and thus vertically integrating its business. This is a strategy that involves high complexity of operations (installation, maintenance, and management) and high cost (via resource accumulation, coupling, and ERP integration). The company would lead regional electricity demand.

The strategy of people pleaser involves FFP’s vertical integration one step forward. In a sense, it would eliminate the need for interconnection partners because the power would be sold directly into the grid. Simultaneously, it requires least capital since it emulates the current state of Free Flow’s operations.

These strategy areas can be pursued independently as well as jointly. For example, coupling strategies of a people pleaser and an asset accumulator would most likely suggest that the Free Flow is up to build an energy empire. However, right now it seems best to pursue one or the other strategy given their high capital intensiveness. From the point of view of strategic objectives, it is best for FFP to follow the strategy of dynamic explorer:

**4.b.** PROCESS CONSIDERATIONS

So far, it seems that the people pleaser strategy is going head to head with the dynamic explorer strategy. It is important to consider that the People Pleaser [further, PP] does better in terms of quality and dependability, meanwhile Dynamic Explorer’s [further, DE] main contribution is the adherence to FFP’s current procurement strategy (which is a little expensive to keep up with because the strategy require implementation of an ERP in addition to existing PM software).

My suggestion is for the company to go with the PP strategy based on its comprehensiveness of satisfying the operational objectives:

People pleaser strategy will be articulated through adhering to suggestions that made it an overall winner: producing several small-impact hydropower plants along the river, avoid doing business with power cooperatives by attracting different types of investors, and keep up the low technological complexity (which also lowers labor expenses).

Specific people within the entire organization should be delegated the role of ‘strategy implementators’. They should work together as a cross-functional team, which would help them ensure the strategy’s comprehensive and smooth execution. The team should report to the assigned manager, which will in turn oversee their work on a periodical basis. A set of milestones should be outlined in order to oversee the strategy implementation effectively. All in all, the standard processes used in project management should be enough in order to ensure the success of implementation.

**5.** SUMMARY

One of the most interesting takeaways from this study is perhaps that asset ownership is not always a good idea. From the overall strategy matrix we have seen that the asset accumulator strategy is less comprehensive in terms of correspondence to the operational objectives. It was also interesting to see the interaction between the operational objectives weights and independent scoring. Together, they allow to compromise between objective requirements for market success and subjective (scored) assessment of operational resources of a company.

The interaction between the operational objectives and strategic objectives is also interesting, since they do not necessarily lead one to the same result. Together, they allow to pick and choose based on a careful analysis. My hypothesis is that any company would benefit from comparing one set of objectives against another. The limitations that the company’s strategy is susceptible to in reality are time, money, and effort. Perhaps, that is the main reason to consider labor intensiveness, speed, and cost/financing, which all border in between the two sets. Most importantly, analyses like these can show what a company can do differently to achieve competitive advantage in its market. They allow to consider different sets of strategies that can ultimately lead to higher efficiency and increased profits.

In the future, it would be great to add the organizational development strategy to the mix. It would give the analysis a more sophisticated perspective on how the company may advance. Change is the only constant in the world of business, and for any company it is important to keep on its toes, look out for possible technological innovations and opportunities for branching out into different tangents of their business. The strategy matrix approach is only one of great forecasting tools that helps consider future possibilities.