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SWOT Analysis of the wind energy project of company ANTIKA

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ABSTRACT

On the hectic and dynamic business environment, strategic approach of majority of the companies competing on the global market place worked toward development of the tools help them build competitive advantage and differential advantage on the market. Through this commitment, strategy as a concept was developed and it's core elements including SWOT analysis. SWOT in general is very broad and can be used for various purposes including individually.

The SWOT analysis headings provide a good framework for reviewing strategy, position and direction of a company, product, project or person (career).

On this project SWOT analysis will be described as a concept including advantages, disadvantages, usage and characteristics and also a case study of Antika company.

ACKNOLEDGMENT

I would like to thank Professor Edmond Hajrizi, University President and Professor for his direction and continued advice throughout this project. I would also like to thank all professors at UBT who lectured through entire my bachelor studies.

Finally, I would like to thank my parents, for their support and encouragement to pursue what I've chosen to do throughout my life.

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Introduction

The SWOT analysis tool is great for developing an understanding of an organization or situation and decision-making for all sorts of situations in business, organizations and for individuals.

The SWOT analysis headings provide a good framework for reviewing strategy, position and direction of a company, product, project or person (career).

Doing a SWOT analysis can be very simple, however its strengths lie in its flexibility and experienced application. Remember the capture is only part of the picture.

The origins of the SWOT analysis technique is credited by Albert Humphrey, who led a research project at Stanford University in the 1960s and 1970s using data from many top companies.

The goal was to identify why corporate planning failed. The resulting research identified a number of key areas and the tool used to explore each of the critical areas was called SOFT analysis. Humphrey and the original research team used the categories “What is good in the present is Satisfactory, good in the future is an Opportunity; bad in the present is a Fault and bad in the future is a Threat.” This was called the SOFT analysis.

In 1964 Urick and Orr at a conference changed the F to a W, and it has stuck as that, soFt to sWot.

1. Background of the company

Antika is one of the largest trade and production companies in Kosovo and Albania as related to Electronic and IT products and relevant accessories with average annual turnover of 7.6 million euro. We have professional workforce of 70 well trained employees. Antika recently has developed manufacturing site of replication and packaging of Audio & Video Cassettes, CD-R and DVD-R with a new brand name Atec.

Antika Company was established in year 1991, with its initial Headquarters in Prizren, Kosovo. Antika is a regional official distributor for RAKS and TDK since year 1995, official distributor for KODAK products in Kosovo since June 2004, official distributor for PELIKAN hard copy and writing instruments products in Kosova and Albania since year 2004, official distributor for CASE LOGIC products in Kosova since year 2005, official distributor for Philips consumer electronics and domestic appliances division in Kosovo since year 2007, and in 2008 Antika signed an cooperation contract with Trendnet wireless solution products and Belkin cables and wireless solution.

Recently, Antika Company made some initial research regarding expanding businesses activities in energy production. This document is also part of this initial phase of gathering information on energy industry, specifically wind energy production.

Kosovo has significant potentials on renewable energy sources, which for the time being are not used (except low scale on hydro-energy). The fact that vast majority of total consumed electrical energy is generated from thermo power plants (average 97.5 %) shows big dependence from this kind of energy. On the other hand in recent years in order to meet demands Kosovo is importing electricity from abroad. Therefore this gap could be bridged by renewable energy sources, in order to avoid the reliance on thermo power plants and on import.

1.2. Wind potential in Kosovo

It is very important to emphasize, in the beginning of this document that currently there is no Wind Map available for Kosovo. According to data published by Statistical Office of Kosovo, the average wind speed in Kosovo varies from 1.3 m/s (meters per second) to 2.4 m/s, whereas the maximum speed reaches 31 m/s in some parts of the country, especially in March and April.

Year 2003

Months	Monthly Average	Annual average
January	2.4 m/s	
February	1.7 m/s	
March	2.1 m/s	
April	2.6 m/s	
May	1.4 m/s	**1.9 m/s**
June	1.4 m/s	
July	2.0 m/s	
August	1.8 m/s	
September	1.7 m/s	
October	2.1 m/s	
November	1.7 m/s	
December	1.4 m/s	

Year 2004

Months	Monthly Average	Annual average
January	2.4 m/s	
February	1.8 m/s	
March	2.2 m/s	
April	2.1 m/s	
May	1.8 m/s	**1.8 m/s**
June	1.5 m/s	
July	2.0 m/s	
August	1.7 m/s	
September	1.8 m/s	
October	2.0 m/s	
November	1.8 m/s	
December	1.6 m/s	

Year 2005

Months	Monthly Average	Annual average
January	1.1 m/s	
February	1.5 m/s	
March	1.7 m/s	
April	2.3 m/s	
May	1.8 m/s	
June	1.2 m/s	**1.4 m/s**
July	1.2 m/s	
August	1.3 m/s	
September	1.1 m/s	
October	1.4 m/s	
November	1.6 m/s	
December	1.4 m/s	

Table 1: Wind potential in Kosovo

Source: statistical office of Kosovo

Type of resource	Resource
Biomass, wood	0,9 million m3
Biomass, livestock	352 000 cattle, 152 000 sheep/goats
Biomass, agriculture	0,3 million ton straw
Solid waste	0,44 million ton
Solar energy	1.500 - 1.650 kWh/m2/year
Wind energy	Unknown
Geothermal energy	Unknown

Table 2: Renewable energy resources in Kosovo

Source: Assessment Study of Renewable Energy Sources in Kosovo, Ministry of Energy and Mining of Kosovo (MEM) & European Agency for Reconstruction (EAR), 2008

1.3. Wind speed assessment

The best way of measuring wind speeds at a potential wind turbine site is to fit an anemometer to the top of a pole which has the same height as the expected hub height of the wind turbine to be used. This way one avoids the uncertainty involved in recalculating the wind speeds to a different height. If anemometers are placed on the side of the pole it is essential to place them in the prevailing wind direction in order to minimize the wind shade from the tower. Thin cylindrical poles are normally preferred over net towers for fitting wind measurement devices in order to limit the wind shade from the tower. The poles come as kits, which are easily assembled, and you can install such a pole for wind measurements at (future) turbine hub height without a winch.

The data on both wind speeds and wind directions from the anemometers are collected on electronic chips on a small computer, a data logger, which may be battery operated for a long period. Once a month or so you may need to go to the logger to collect the chips and replace them with blank chips for the next month's data. If there is much freezing rain in the area, or frost from clouds in mountains, you may need a heated anemometer, which requires an electrical grid connection to run the heater.

Wind speed assessments usually last for six months or more.

1.4. Description of the location

The new wind farm will be located in the region of Prizren, more specifically 7 km in suburb of Prizren, in the village called Korisha. The hill in front of the village is considered to be a very promising location for a wind farm. Years ago, Antika and some engineers from Austria have scanned the location, and according to them there is a huge potential for a wind farm. The hill is very close to village, has an enormous space for implementing a wind farm project, and what is more important is very close to current energy grid. The land is a public property, and there is an opportunity to rent it for 99 years. The municipality of Prizren has shown huge interest to cooperate in project as such.

On of the tasks for Antika company, in the near future, is to apply for license regarding the land.

Until now there are no wind parks in Kosovo. Currently a foreign private investor jointly with a local company started implementation of a wind energy project, which is located in Golesh - Lipjan municipality. For now this is first project about generation of energy from wind in Kosovo.

1.5. Description of the technology

During last decades of twentieth century it was proved that Wind Energy has a big generating potential. Still, there are some difficulties with controlling the speed and direction, which results output voltage of variable frequency not being suitable for connecting to distributive electrical network system. Wind turbines can either operate at fixed-speed (generator is directly connected to electrical grid) or variable-speed (generator is controlled by power electronics equipment) all depends of environment circumstances and desired output power.

Although it has been exploited for thousands of years, the re-emergence of wind energy for electric power generation in the grid-connected mode is of relatively recent origin. Since the mid-seventies, when work began in earnest on harnessing wind, the development of wind energy technology has made significant progress. Modern wind turbines are far removed from their historic predecessors. They are highly sophisticated machines built on aerodynamic principles.

These principles were developed from the aerospace industry, incorporating advanced materials and electronics. Modern wind turbines are designed to deliver energy across a range of wind speeds. The technical feasibility of using wind as a major source of energy has now been established, and wind energy today ranks as one of the most promising of the renewable energy technologies for generating electricity. Today, wind power is a truly global phenomenon and is beginning to figure in national energy plans as an important source of energy, income and employment.

Wind is one of the most cost-effective of the renewable energy technologies, and the resource is widely distributed around the world. The capital costs have halved and nowadays average about 750 EUR/KW. Operation and maintenance costs have dropped four-fold over the last decade to 1 - 1.5 cents/KWh. Availability factors have increased from 60 percent to over 95 percent, and generation can be predicted with certainty on a long-term basis.

The two biggest reasons for using wind to generate electricity are the most obvious ones: Wind power is **clean**, and it's **renewable**. It doesn't release harmful gases like CO_2 and nitrogen oxides into the atmosphere the way coal does, and we are in no danger of running out of wind anytime soon. There is also the independence associated with wind energy, as any country can generate it at home with no foreign support. And a wind turbine can bring electricity to remote areas not served by the central power grid. But there are downsides, too. Wind turbines can't always run at 100 percent power like many other types of power plants, since wind speeds fluctuate. And the energy produced by a wind farm could be much expensive than energy produced by other forms. The wind turbine technologies employ flexible, lightweight blades and larger rotor diameters (up to 66m), improved ailerons, teetering attachments; direct drive transmission; increased height (up to 68 m) and aerodynamic tower design; and advanced electronic controls. The construction lead-time is less than six months, and wind turbine installations are highly modular.

The National Programme on renewable energy in Kosovo should include wind resource assessment activities; research and development support; implementation of demonstration projects to create awareness and opening up of new sites; involvement of utilities and industry; development of infrastructure capability and capacity for manufacture, installation, operation and maintenance of wind electric generators; and policy support.

1.6. Costs of the wind farm

According to several studies (see appendix 3 and 4) a larger wind turbine will cost less per KW as compared to the small wind turbines. It is also a well known fact that the cost of starting a large wind turbine reduced sharply in the last decade and continues to decline every year. For example the average cost of a large scale wind turbines decreased from 3000 EUR or more per KW that was the average in 1981 to almost 750 EUR per KW in 2000. Although, the cost of the wind turbine depends on the design of the large wind turbines, it has been confirmed from various studies that the larger the wind turbine, the more cost efficient it is. Studies have shown that the economies of scale start to affect the cost per KW from around 500 KW turbines to larger turbines. Just because of this reason, wind turbines of 1 to 1.5 MW are becoming normal and are replacing the small turbines. In this regard, we recommend to Antika, larger wind turbines, meaning wind turbines larger than 500 KW.

Similarly, a larger wind farm is considered more economical than a smaller wind farm. Among other factors that contribute to the effective wind turbine, wind is considered to be one of the most important. The greater the wind speed, the more efficient the wind turbine. It is for this reason large wind turbines with more KW power are being preferred. One of the other reasons that larger wind turbines are price for the value is because the operational and maintenance costs of building a wind turbine are on the fall.

Operation and maintenance (O&M) costs have dropped four-fold over the last decade to 1 - 1.5 euro cents/KWh, and are likely to drop to less than 1 euro cent/KWh by the year 2005.

Various studies have shown that the costs associated with large wind turbines (i.e. greater than 500KW) averages 750 EUR per KW. On the other hand, the cost of wind turbines that have less power are higher, but the cost might decrease with the expansion of the wind farm, hence larger size is better.

The trend in wind turbine development is toward systems with larger and larger power ratings. In

2001, less than 2% of the newly installed capacity came from turbines rated at less than 500kW. Turbines rated at 1 to 1.5MW are becoming standard fare and there are several 5MW-class systems under development.

The best opportunities for cost reduction lie in designing and building more cost-effective wind turbines that lower the initial capital cost. The wind energy market is very robust.

The amount of manpower involved in building a 150 kW machine is not very different from what is required to build a 600 kW machine.

The cost of energy varies with the wind speed. The greater the wind speed the less the cost of energy. Improvement in turbine design brings down the energy cost. Comparison of 25KW and 1650 KW power wind turbine costing 2,600 to 790 cost per KW, respectively. A large wind farm is more economical as compared to the small.

Operation and maintenance (O&M) costs have dropped four-fold over the last decade to around 1 c/KWh. With the output from a modern turbine in a good wind area now is averaging 800-1,000 KWh/year/Sq.m.

A 1.5 MW wind turbine cost was 750 per Kw.

Summary of a Project to install a 600 KW wind turbine in Denmark in 1995 that cost 772.87 per Kw.

1.7. Price Competition and Product Range

Price competition is currently particularly tough in the industry of wind turbines, and the product range particularly large around 1000 kW. Even if prices are very similar in the range from 600 to 750 kW, it is not necessarily that a machine with as large a generator as possible, would be more productive. A machine with a large 750 kW generator (and a relatively small rotor diameter) may generate less electricity than, say a 600 kW machine, if it is located in a low wind area.

The working horse today is typically a 1000 kilowatt machine with a tower height of some 60 to 80 meters and a rotor diameter of around 54 meters.

Installation costs include foundations, normally made of reinforced concrete, road construction (necessary to move the turbine and the sections of the tower to the building site), a transformer (necessary to convert the low voltage (690 V) current from the turbine to 10-30 kV current for the local electrical grid, telephone connection for remote control and surveillance of the turbine, and cabling costs, i.e. the cable from the turbine to the local 10-30 kV power line.

Installation Costs

Obviously, the costs of roads and foundations depend on the conditions of land, i.e. if there is a road capable of carrying 30 tonne trucks. Another variable factor is the distance to the nearest ordinary road, the cost of getting a mobile winch to the site, and the distance to a power line capable of handling the maximum energy output from the turbine.

Economies of Scale

It is obviously cheaper to connect many turbines in the same location, rather than just one. On the other hand, there are limits to the amount of electrical energy the local electrical grid can handle. If the local grid is too weak to handle the output from the turbine, there may be need for grid reinforcement, i.e. extending the high voltage electrical grid. It varies from country to country who pays for grid reinforcement - the power company or the owner of the turbine.

Modern wind turbines are designed to work for some 120,000 hours of operation throughout their design lifetime of 20 years.

Operation and Maintenance Costs

Experience shows that maintenance cost are generally very low while the turbines are brand new, but they increase somewhat as the turbine ages.

Studies done on the 5000 Danish wind turbines installed in Denmark since 1975 show that newer generations of turbines have relatively lower repair and maintenance costs that the older generations. Older Danish wind turbines (25-150 kW) have annual maintenance costs with an average of around 3 per cent of the original turbine investment. Newer turbines are on average substantially larger, which would tend to lower maintenance costs per kW installed power. For newer machines the estimates range around 1.5 to 2 per cent per year of the original turbine investment.

Most of maintenance cost is a fixed amount per year for the regular service of the turbines, but some people prefer to use a fixed amount per kWh of output in their calculations, usually around 0.01 EUR/kWh. The price of a new set of rotor blades, a gearbox, or a generator is usually in the order of magnitude of 15-20 per cent of the price of the turbine.

Project Lifetime, Design Lifetime

The components of Danish wind turbines are designed to last 20 years. It would, of course, be possible to design certain components to last much longer, but it would really be a waste, if other major components were to fail earlier.

The 20 year design lifetime is a useful economic compromise which is used to guide engineers who develop components for the turbines. Their calculations have to prove that their components have a very small probability of failure before 20 years have elapsed.

The actual lifetime of a wind turbine depends both on the quality of the turbine and the local climatic conditions, e.g. the amount of turbulence at the site.

With a mean wind speed of, say 6.75 meters per second at hub height you get about 1.5 million kilowatt hours of energy per year.

The Availability Factor

We will base our calculations with the assumption that wind turbines are operational and ready to run all the time. In practice, however, wind turbines need servicing and inspection once every six months to ensure that they remain safe. In addition, component failures and accidents (such as lightning strikes) may disable wind turbines.

Very extensive statistics show that the best turbine manufacturers consistently achieve availability factors above 98 per cent, i.e. the machines are ready to run more than 98 per cent of the time. Total energy output is generally affected less than 2 per cent, since wind turbines are never serviced during high winds. Such a high degree of reliability is remarkable, compared to other types of machinery, including other electricity generating technologies. The availability factor is therefore usually ignored when doing economic calculations, since other uncertainties (e.g. wind variability) are far larger.

Not all wind turbine manufacturers around the world have a good, long reliability record, so we recommend checking the manufacturers' track record and servicing ability before buying a new wind turbine.

Calculating costs

We would like to emphasize that wind speed at 50 meters hub height will be some 30% higher than at 10 meters height, which is usually used for meteorological observations.

A wind speed of e.g. 6 m/s at 10 meters height in roughness class 1 will translate into 8 m/s at 50 meters hub height.

In some cases installation costs include costs for extension of the electrical grid and/or grid reinforcement. Since the costs of cabling can be quite significant, it matters a lot whether a wind farm is located next to an existing medium voltage power line (9-30 kV), or far from a power line. Consequently it makes no sense to use average installation costs, if we are not talking about areas with roughly the same wind climate, the same electricity price per kWh delivered to the grid, and the same distance to the grid.

The price per kW Rated Power is a Very Poor Guide to Investment in Wind Power - the Price per Square Meter Rotor Area matters

It is very difficult to give a single figure for price per kW installed power, because the price of a turbine varies much more with its rotor diameter than with the rated power of its generator. The reason is that annual production depends much more on the rotor diameter than the generator size. Studies which compare the average price per kW installed power for different technologies are usually misleading, if they include wind power.

As an example of why it is misleading to use the price per kW rated power for a wind turbine, compare the annual energy production from two machines from the same manufacturer, both mounted on a 50 m tower.

Vestas V39, a 600 kW turbine with a 39 m rotor diameter

Vestas V47, a 660 kW turbine with a 47 m rotor diameter

The result is that annual energy production from the second machine is 45.2% higher than the first machine, despite the fact that the generator is only 10% larger. If you compare the two rotor areas, however, you may observe that the rotor area of the second machine is exactly 45.2% larger than the first machine.

So, if we assume that the price for the second machine is 33% higher than for the first machine you would get very different results, if you compare

The price per kW rated power has increased 21%

The price per sq m rotor area has decreased 8.4%

The price per kWh energy has decreased 8.4%

New wind turbines are increasingly being built with pitch control rather than stall control. This means that the generator size can be varied more freely in relation to the rotor size. In general, there is a tendency to use larger rotor areas for a given generator size. That means that you will get a completely wrong (overestimated) price development when you compare the price per kW installed power for old turbines with new turbines.

Capacity factors will be very different for different machines, but likewise the prices (or costs) of those machines will be very different. In the final analysis, what counts is the cost per kWh of energy produced, not the capacity factor.

It is a very common mistake to treat compensation to land owners where the turbines are placed as a cost of wind energy. Actually, it is only a minor share of the compensation which is a cost, namely the loss of crop on the area that can no longer be farmed, plus possible nuisance compensation in case the farmer has to make extra turns when plowing the fields underneath the wind turbines.

If the compensation exceeds what you would normally pay to install a power line pylon, the excess is really an income transfer, which is quite a different matter to economists. It is not a cost to society as such, but it is a transfer of income (profits) from the wind turbine owner to the land owner. Such a profit transfer called a land rent by economists. A rent payment does not transfer real resources from one use to another.

Some people ask what the normal compensation for placing a wind turbine on agricultural land is. The answer is, that there is no "normal" compensation. The compensation depends on the quality of the site. If there is a lot of wind, and there is cheap grid access nearby, the land owner can bargain for a high compensation, because the turbine owner can afford it due to the profitability of the site. If there is little wind, and/or high installation costs, the compensation will just be the nuisance value of the turbine.

A wind turbine with 20 years expected lifetime, that produces 600 KW, will cost 450,000 EUR, installation cost is 30% of the cost of a turbine, whereas total investment is 585,000 EUR. With a average wind speed of, say 6 meters per second at hub height a turbine generates about 1.5 million kilowatt hours of energy per year. If that result is multiplied by price per kwh in Kosovo, which is 0.084 EUR (or in other words 84 EUR per mw), than the annual income would be 126,000 EUR.

In 2006, wind power costs as little as 3 to 5 cents per kWh where wind is especially plentiful. The higher the wind speed over time in a given turbine area, the lower the cost of the electricity that turbine produces. On average, the cost of wind power is about 4 to 10 cents per kWh in the Europe.

Energy Costs Comparison	
Resource Type	**Average Cost (cents per kWh)**
Hydroelectric	2-5
Nuclear	3-4
Coal	4-5
Natural gas	4-5
Wind	4-10
Geothermal	5-8
Biomass	8-12
Hydrogen fuel cell	10-15
Solar	15-32
Sources: American Wind Energy Association, Wind Blog, Stanford School of Earth Sciences	

Table 3: Energy cost comparison

Overall, wind farms cost in the area of 1,000 per kW of capacity, so a wind farm consisting of seven 1.8-MW turbines runs about 12.6 million. The "payback time" for a large wind turbine -- the time it takes to generate enough electricity to make up for the energy consumed building and installing the turbine -- is about three to eight months, according to the American Wind Energy Association.

Calculating Power

In order to calculate the amount of power a turbine can generate from the wind, we need to know the wind speed at the turbine site and the turbine power rating (which needs to be assessed by a professional assessment). Most large turbines (larger than 500 kw) produce their maximum power at wind speeds around 15 meters per second. Considering steady wind speeds, it's the diameter of the rotor that determines how much energy a turbine can generate. We need to emphasize that as a rotor diameter increases the height of the tower increases as well, which means more access to faster winds. In the table below we are presenting the rotor size and a maximum power output by a wind turbine. In this case we recommend a wind turbine with a rotor of 44 meters that generates 600 kw.

Rotor Size and Maximum Power Output	
Rotor Diameter (meters)	**Power Output (kW)**
10	25
17	100
27	225
33	300
40	500
44	600
48	750
54	1000
64	1500
72	2000
80	2500
Sources: Danish Wind Industry Association, American Wind Energy Association	

Table 4: Power calculator

At a wind speed of 15 m/s, most large turbines generate their rated power capacity, and at 20 m/s, most large turbines shut down. There are a number of **safety systems** that can turn off a turbine if a wind speed threatens the structure, including a remarkably simple vibration sensor used in some turbines that basically consists of a metal ball attached to a chain, poised on a tiny pedestal. If the turbine starts vibrating above a certain threshold, the ball falls off the pedestal, pulling on the chain and triggering a shut down. Probably the most commonly activated safety system in a turbine is the **"braking" system**, which is triggered by above-threshold wind speeds. These setups use a power-control system that essentially hits the brakes when wind speeds get too high and then "release the brakes" when the wind is back below 20 m/s. Modern large-turbine designs use several different types of braking systems:

- **Pitch control** - The turbine's electronic controller monitors the turbine's power output. At wind speeds over 20 m/s, the power output will be too high, at which point the controller tells the blades to alter their pitch so that they become unaligned with the wind. This slows the blades' rotation. Pitch-controlled systems require the blades' mounting angle (on the rotor) to be adjustable.
- **Passive stall control** - The blades are mounted to the rotor at a fixed angle but are designed so that the twists in the blades themselves will apply the brakes once the wind becomes too fast. The blades are angled so that winds above a certain speed will cause turbulence on the upwind side of the blade, inducing stall. Simply stated, aerodynamic stall occurs when the blade's angle facing the oncoming wind becomes so steep that it starts to eliminate the force of lift, decreasing the speed of the blades.
- **Active stall control** - The blades in this type of power-control system are pitchable, like the blades in a pitch-controlled system. An active stall system reads the power output the way a pitch-controlled system does, but instead of pitching the blades out of alignment with the wind, it pitches them to produce stall.

SMALL GENERATORS:

- Require less force to turn than larger ones, but give much lower power output.
- Less efficient. i.e. if one fits a large wind turbine rotor with a small generator it will be producing electricity during many hours of the year, but it will capture only a small part of the energy content of the wind at high wind speeds.

LARGE GENERATORS:

- Very efficient at high wind speeds, but unable to turn at low wind speeds. i.e. If the generator has larger coils, and/or a stronger internal magnet, it will require more force (mechanical) to start in motion.

2.SWOT Analysis

Increased competition and uncertain business conditions have put significant pressure on corporate management to focus on strategic planning, meaning to make informed business decisions and maximize their company’s financial performance.

"Strategy is the direction and scope of an organization over the long-term: which achieves advantage for the organization through its configuration of resources within a challenging environment, to meet the needs of markets and to fulfill stakeholder expectations” [1]

In response, a range of management accounting tools and techniques has emerged, one of them being SWOT.

2.2The use of SWOT

The usefulness of SWOT analysis is not limited to profit-seeking organizations. SWOT analysis may be used in any decision-making situation when a desired end-state (objective) has been defined. Examples include: non-profit organizations, governmental units, and individuals. SWOT analysis may also be used in pre-crisis planning and preventive crisis management. SWOT analysis may also be used in creating a recommendation during a viability study/survey.

2.2.1Strengths:

A corporation's strengths are its resources and capabilities that can be used as a basis for developing a competitive advantage. Therefore we need to figure out:

- •What advantages does our company have?
- •What do we do better than anyone else?
- •What unique or lowest-cost resources do we have access to?
- •What do people in our market see as our strengths?

In looking at companies strengths, we should think about them in relation to competitors – for example, if all competitors provide high quality products, then a high quality production process is not strength in the market, it is a necessity.

2.2.2Weaknesses:

The absence of certain strengths may be viewed as a weakness.

- •What could we improve?
- •What should we avoid?
- •What are people in our market likely to see as weaknesses?

We consider this from an internal and external basis: Do other people seem to perceive weaknesses that we do not see? Are our competitors doing any better than us?

2.2.3Opportunities:

The external environmental analysis may reveal certain new opportunities for profit and growth.

- •Where are the good opportunities facing us?
- •What are the interesting trends we are aware of?

A useful approach to looking at opportunities is to look at our strengths and ask ourselves whether these open up any opportunities. Alternatively, we should look at our weaknesses and ask ourselves whether we could open up opportunities by eliminating them.

2.2.4Threats:

Changes in the external environmental also may present threats to the company.

- •What obstacles do we face?
- •What is our competition doing?
- •Are the required specifications for our job, products or services changing?
- •Is changing technology threatening our position?
- •Do we have bad debt or cash-flow problems?
- •Could any of our weaknesses seriously threaten your business?

Carrying out this analysis will often be illuminating - both in terms of pointing out what needs to be done, and in putting problems into perspective.

Below is an example of SWOT analysis of consulting company with detail information explaining what elements can be listed as strengths, as opportunities, as weaknesses and as threats.

Strengths	**Weaknesses**
Reputation in marketplace	Shortage of consultants at operating level rather than partner level
Expertise at partner level in HRM consultancy	Unable to deal with multi-disciplinary assignments because of size or lack of ability
Opportunities	**Threats**
Well established position with a well defined market niche	Large consultancies operating at a minor level
Identified market for consultancy in areas other than HRM	Other small consultancies looking to invade the marketplace

Table 5: SWOT analysis

2.3. SWOT analysis at marketing management

In many competitor analyses, marketers build detailed profiles of each competitor in the market, focusing especially on their relative competitive strengths and weaknesses using SWOT analysis. Marketing managers will examine each competitor's cost structure, sources of profits, resources and competencies, competitive positioning and product differentiation, degree of vertical integration, historical responses to industry developments, and other factors.

Marketing management often finds it necessary to invest in research to collect the data required to perform accurate marketing analysis. Accordingly, management often conducts market research (alternately marketing research) to obtain this information. Marketers employ a variety of techniques to conduct market research, but some of the more common include:

- Qualitative marketing research, such as focus groups
- Quantitative marketing research, such as statistical surveys

- Experimental techniques such as test markets
- Observational techniques such as ethnographic (on-site) observation

Marketing managers may also design and oversee various environmental scanning and competitive intelligence processes to help identify trends and inform the company's marketing analysis while SWOT analysis can be very useful.

2.4. SWOT landscape analysis

The SWOT-landscape grabs different managerial situations by visualizing and foreseeing the dynamic performance of comparable objects according to findings by Brendan Kitts, Leif Edvinsson and Tord Beding (2000).

Changes in relative performance are continually identified. Projects (or other units of measurements) that could be potential risk or opportunity objects are highlighted.
SWOT-landscape also indicates which underlying strength/weakness factors that have had or likely will have highest influence in the context of value in use (for ex. capital value fluctuations).

2.5. Internal and external factors

The aim of any SWOT analysis is to identify the key internal and external factors that are important to achieving the objective. These come from within the company's unique value chain. SWOT analysis groups key pieces of information into two main categories:

- Internal factors – The strengths and weaknesses internal to the organization.

- External factors – The opportunities and threats presented by the external environment to the organization.

Strengths and Weaknesses **- Internal Factors**	**Opportunities and Threats** **- External Factors**
- What advantages does your company have? - What do you do better than anyone else? - What unique or lowest-cost resources do you have access to? - What do people in your market see as your strengths? - What factors mean that you "get the sale"? - What could you improve? - What should you avoid? - What are people in your market likely to see as weaknesses? - What factors lose you sales? - Advantages/ Disadvantages of proposition? - Capabilities/ Gaps? - Competitive advantages? - USP's (unique selling points)/ reputation? - Resources, Assets, People? - Experience, knowledge, data? - Financial reserves, likely returns? - Marketing - reach, distribution, awareness? - Innovative aspects? - Location and geographical? - Price, value, quality? - Accreditations, qualifications, certifications? - Processes, systems, IT, communications? - Cultural, attitudinal, behavioral? - Management cover, succession? Other factors may include: - Resources: financial, intellectual, location - Cost advantages from proprietary know-how - Creativity / ability to develop new products - Valuable intangible assets: intellectual capital - Competitive capabilities - Big company selection	- Where are the good opportunities facing you? - What are the interesting trends you are aware of? - Useful opportunities can come from such things as: - Changes in technology and markets on both a broad and narrow scale - Changes in government policy related to your field - Changes in social patterns, population profiles, lifestyle changes, etc. Local Events - Market developments? - Competitors' vulnerabilities? - Industry or lifestyle trends? - Technology development and innovation? - Global influences? - New markets, vertical, horizontal? - Niche target markets? - Geographical, export, import? - New USP's? - Tactics - surprise, major contracts, etc? - Business and product development? - Information and research? - Partnerships, agencies, distribution? - Volumes, production, economies? - Seasonal, weather, fashion influences? - What obstacles do you face? - What is your competition doing that you should be worried about? - Are the required specifications for your job, products or services changing? - Is changing technology threatening your position? - Do you have bad debt or cash-flow problems? - Could any of your weaknesses seriously threaten your business? - Political effects? - Legislative effects? - Environmental effects? - IT developments?

	- Competitor intentions - various? - Market demand? - New technologies, services, ideas? - Vital contracts and partners? - Sustaining internal capabilities? - Obstacles faced? - Insurmountable weaknesses? - Loss of key staff? - Sustainable financial backing? - Economy - home, abroad? - Seasonality, weather effects? Other factors may include: - Takeover's - Market Trends - Economic condition - Mergers - Joint ventures - Strategic alliances - Expectations of stakeholders - Technology - Public expectations - Competitors and competitive actions - Poor Public Relations Development - Criticism (Editorial) - Global Markets - Environmental conditions

Table 6: List of internal and external factors

2.6. Matching and converting

Another way of utilizing SWOT is matching and converting.

Matching is used to find competitive advantages by matching the strengths to opportunities.

Converting is to apply conversion strategies to convert weaknesses or threats into strengths or opportunities.

An example of conversion strategy is to find new markets.

If the threats or weaknesses cannot be converted a company should try to minimize or avoid them

2.7. Aim of SWOT analysis

- Reveal your competitive advantages
- Analyze your prospects for sales, profitability and product development
- Prepare your company for problems
- Allow for the development of contingency plans

A SWOT analysis is a process to identify where you are strong and vulnerable -- where you should defend and attack. The result of the process is a 'plan of action', or 'action plan'.

The analysis can be performed on a product, on a service, a company or even on an individual.

Done properly, SWOT will give you the BIG PICTURE of the MOST IMPORTANT FACTORS that influence SURVIVAL and PROSPERITY. As well as a PLAN to ACT ON.

3. SWOT Analysis of the wind energy project of company ANTIKA

STRENGTHS: • Almost 20 years experience in the market of Kosovo • Very good relationship with many businesses partners in Kosovo • Access to a windy location	**WEAKNESSES:** • Lack of proper feasibility study • Lack of financial sources • Lack of accurate and reliable data regarding wind speed in the locations
OPPORTUNITIES: • Very sufficient legal framework • Increase of the demand for energy • Signing of agreements for renewable energy production • Stable domestic market with highdemand for energy • Favorable conditions in termsresources for renewable energies(solar, wind, biomass and hydro-energy);	**THREATS:** • Competition from other sources of energy production, such as energy from lignite • Insufficient natural resources (lack of wind) • Lack of effective financial support forproduction of renewable energy;

Table 7: SWOT analysis of Antika company

4.Conclusion

SWOT Analysis is a simple but powerful framework for analyzing company's Strengths and Weaknesses, and the Opportunities and Threats the company might face. This helps us to focus on strengths, minimize threats, and take the greatest possible advantage of opportunities available.

SWOT analysis provides information that is helpful in matching the company's resources and capabilities to the SWOT-s:

Strengths •Very preferable and required products •High quality of the products •Competitive price •Modern technology and equipments •Working environment and working conditions •Lean processes •Relatively secured market •ISO 9001 certified •Low tax on income •Economies of scale •Export	**Weaknesses** •Lack of local production of raw materials •Loans •High interest rates •Small investment in brand name and in marketing •No proper cost accounting •Energy and infrastructure •Tax on imported producing machinery and equipment •Lack of the experience of the relatively new staff
Opportunities •The increase in the production capacity •Installing new technology •The increase in the production and business lines •New markets	**Threads** •Competition •The return of loans •Weather and climatic changes

Table 8: Construction of SWOT analysis

From a SWOT analysis of “Antika” we have put in sight its strengths and weaknesses. We have seen that its industry where it’s operating is very secure and stable in terms of the nature of the products. The prices and the quality of the products are very competitive since it’s a guaranteed sale of all possible energy that can be produced.

We have evidenced also some weaknesses in "Antika", and they are mainly linked with loans and high interest rates, infrastructure and energy problems. Also they have young staff with not such an experience and they have to fulfill they demand for raw materials with supplies from abroad.

As for the threads and opportunities, we have seen that "Antika" can expand its capacities, its product lines and its markets. In the future it may have access into new markets and it may install new technology. However some threads are linked with the repayment of loans with high interest rates and with the future tough competition it may face. Moreover, not having the constant wind as planed through initial technical feasibility study.

We would suggest to "Antika" to invest more in the marketing and research cheaper windmills and other important equipments important for implementation of the win farm project. Additionally, focusing in better cost accounting it's recommendable. It is very hard to manage and to make decisions in a big company without a proper cost accounting. It would be very hard to manage the cost and the expenses of the operations, but also a proper cost accounting would ease the decision of deciding about the prices of the products.

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