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Competitive Advantage

Analyse your mine's Competitive Advantage

- Many in the resources industry have not yet realised that competitive advantage may decide the future of their business
- Competitive advantage will decide how good a mine can become as a business and which mine will flourish and which will fade.
- The text book approach to competitive advantage is turned upside down in resources.

Demand Side

A marketing text book on “competitive advantage” is likely to focus entirely on how to change your offering of goods or services to best satisfy the customers' wants. It would seek ways to differentiate what is being offered for sale to more fully capture the customers, and so as to expand market share and profit margins. This is illustrated vividly by the evolution of products in the mobile phone industry, and the rise and fall of the competing companies. A text book would focus on customer wants and the demand side of the market.

But for mines the ability to change the goods being offered in the market usually is quite restricted. This is because the genesis of the ore deposit is likely to dominate the demand side of the mine's competitive advantage. The ore-body's competitive advantage is shaped by its 'DNA'

Two of its biggest differentiators in the market – product quality and location - will be largely predetermined.

- a. If the mine sells a mineral or concentrate then its quality is dominated by the character of the ore deposit that is in the ground. A copper mine can use sophisticated processing to upgrade the concentrate but the mineralogy of the ore will largely determine the upper %Cu assay of the concentrate. If there are no precious metals in the ore and if high levels of iron and arsenic are present at atomic level then the product is likely to suffer. In the phosphate rock market if cadmium was co-precipitated in the minerals when the phosphate rock deposit was formed then it is likely to persist through to the final product and downgrade/prohibit its purchase by fertilizer manufacturers. Argyle diamonds was a brilliant exception in developing a new market segment for its previously unsalable 'champagne' coloured stones.
- b. If the mine sells a metal or refined chemical intermediate then its quality probably is determined by a long established international standard of purity and there is limited or no room to differentiate on product quality. Final copper metal offered for sale is likely to be something like 99.99% Cu. Tungsten can be offered as APT and nickel as a hydroxide. Phosphate rock could be processed through to standard MAP or DAP.

- c. For minerals and metals, the mine's proximity to global customers - its geographic location - would have been decided eons ago in geological time. An energy coal deposit would suffer huge competitive disadvantage if it has formed in Central Australia. By contrast the Yampi iron ore deposits were extremely high grade and their shipping wharves were constructed just a few hundred metres away.
- d. Gold is the prime example of a global mining industry where the demand side of competitive advantage has no relevance. It is a standard product (even as dore) where geographic location is unimportant to customers.

Despite these inherent limitations every mine is likely to have a few characteristics that it needs to exploit to the full and some penalties it needs to reduce/remove to maximise its competitive advantage. To be able to do this, management needs to be fully aware of its customers' needs and wants.

Supply Side

Fortunately for some mines and unfortunately for others there is a second dimension to competitive advantage that may be omitted from textbooks: **the supply side**. Text books on 'competitive advantage' rarely cover the supply side. For most mines the costs of mining and delivering products to the market is a key measure of competitive advantage. But like the demand side, it too is dominated by the genesis of the ore body.

It requires a systematic analysis of competitors the industry, and is outlined below.

So what can management do?

Up to the 1980's many mines/smelters were run as cost centres. The mine/smelter management's task was to produce maximum tonnes at minimum cost. "Don't you worry about sales!" Marketing was kept separate and aloof. The next phase was to treat mines/smelters as profit centres. The operations had to recognise sales made by the still separate marketing people and operations people went on trips to customers, but operations and marketing were kept apart by senior management. There was a feeling that the industry changes very slowly and we will be around for many years to come. Both these approaches still persist today.

Instead the operations should find themselves as part of a bigger team where the marketing has day-to-day integration with production and planning. Together the marketing and operations professionals should know the company's customers and competitors as well as they know themselves. Between them they should:

1. Exploit whatever competitive advantage they can offer to customers, and
2. Understand where the mine sits in the global industry.

Each global mineral and metal industry is forever evolving and changing, sometimes in unexpected ways, and management should be aware of how the market is changing and be steering the mine in the correct direction.

1. Improving the mine's offerings

Operations needs to work closely with the marketing department to regularly interact with customers so as to focus on what how their needs are evolving and so how the mine can improve its

offerings to be more competitive. It can be especially fruitful for the mine and the metallurgical leaders to regularly visit the customers' works and develop a working relationship. This alone can be a way of differentiating the mine's products.

Mines cursed with what seems to be competitive disadvantages usually have to work the hardest to retain existing customers and win new customers. If product quality is inferior because of contaminants in the mineral concentrate or if the mine is an expensive distance from customers then the company will suffer reduced income. Unless the global industry is very profitable, the mine is likely to operate at low margins. The mine management may be alert and creative but find the cost of product innovation a burden.

At the other end, mines blessed with enormous, high grade deposits may become strong negotiators in the market place, get premiums and schedule shipments to suit their own production. Their biggest danger is to become complacent, even arrogant and alienate customers, because one day the market will change.

Product Quality: If a mine looks at its own industry as it was decades ago and compares with today it is likely to see evolution of products. As technology improves, prime deposits exhaust, new deposits commission, and the whole industry innovates, so the competitive environment changes. Each mine should relentlessly push its geology, mining, metallurgical, logistics, sales and commercial experts for ways to become more competitive. Progress is likely to be slow but it is important that management chips away.

Beware of Superseded Technocrats: Looking back over the decades is likely to reveal very experienced and well regarded professionals who became entrenched in their own knowledge of the industry and limited by their own experiences in the market. Their industries evolved but their thinking did not. Gradually the industry passed them by. They dismissed new perspectives and made outdated assertions about product quality and volumes. New global technology coupled with the global economy washed them away. The purchases of major industrial minerals and metals, like energy coal, steelmaking coal, iron ore and copper, needed to feed China and the developing world have expanded so rapidly that the norms of decades ago have been left behind. In iron ore and coking coal, companies now successfully mine deposits previously considered unusable. They offer a new range of intermediate products to the global steelmaking market. This innovation in the market has been ushered in by the need for very large increases in volumes and the resulting need to develop better technology in steelmaking to use poorer quality feed. Think of the mines able to adapt and exploit these new products that have triumphed.

Geography: For bulk materials of relatively low value the geographic location of the mine will be important. Mines close to customers or close to deep water ports will have a major advantage. Product offerings might need to be adapted to match the particular needs of niche customers within the local region.

Saudi Arabia has established several brand new, major mining industries with railways to new deep ports on its east coast because it could ship at low cost to India and Asia.

Commercial Terms: For most global mining industries the product logistics and payment terms are likely to be well established. The cargo sizes, transport method, delivery schedule, price computation and payment terms have become almost standard for many minerals and metals for many decades. None-the-less the mine management should be encouraging ways for the company to differentiate its products and offer a more attractive commercial package. A mine trying to break into a market may need to offer some special benefits, so an existing mine should consider if breaking convention would bring worthwhile returns.

Corporate and Political Relationships: For some mines a competitive advantage is a corporate or political relationship. Common ownership, political or social alliance, import tariffs and export penalties can mean purchases are directed to a particular mine. These markets are not level and fair. Of course this competitive advantage is not natural and will last only as long as the relationship.

2. Monitoring the Industry

As outlined above the mine should know the market as well as it knows itself. Understanding the global industry should rank along with managing the mine's operations, planning, accounting, environment, community and commerce. Analysing and monitoring the market is likely to be performed by the marketing department, but mine management should help evaluate competitors' operations, costs and advantages.

Industry cost curve

A key output is the industry cost curve. It is a simple graph of columns where the width represents the output and the height represents the cost. Columns are sorted from the shortest on the left to the tallest on the right.

Plotting an existing mine or a proposed mine on the industry cost curve is very illuminating. If an expansion of the mine is proposed, the position before and after will be most revealing. It should be required as part of any mine assessment and any investment decision.

Position on the cost curve should rank up with NPV and IRR when important decisions are made. Of course the position of a mine on the cost curve largely is determined by the nature of the ore body and its location. Low cost mines in the bottom half find it easier to justify investment and expansion, providing it does not significantly worsen its cost position in the industry. By contrast any project leader whose proposed mine slots in near the top of the cost curve will have a serious challenge.

Price forecasting: Some marketing experts use the highest cost producers as a base for price forecasting. This pricing method is available from market professionals and on the Internet.

Mine closures: In theory any mines with costs above the ruling price for an extended period are supposed to close down. In practice many appear to defy gravity and keep operating because of hidden benefits such as employment, political pressure, environmental liabilities, closure and redundancy costs, face-saving and optimistic price forecasts. Do mines actually reduce production if the marginal cost of production is lower than the ruling price?

The detail is very important: While the concept is simple the computations underlying a cost curve can be contentious, and might become misleading. Some costs should be included, some costs

should be excluded but others need clarification. Two broad sets of cost curves are in common use and another seems useful. They are:-

1. Cash costs – the most commonly used
2. Full costs including depreciation, financing, etc are of less interest to mine managers since they include past capital expenditures and future accounting charges.
3. Incremental costs – rarely produced but would be a useful guide to which producers might survive a market downturn and which are more likely to exit.

Cash costs will be the only category outlined below.

Cash Costs: The most useful cost curve is based on the average cash costs to operate the mine and deliver products to the customers' works. These include: -

- a. Mine site operating costs including G&A, supply and despatch, logistic costs, tailings dam and waste dump cash expenditures, community and environmental costs paid in cash.
- b. Operating maintenance, major replacements and ongoing capex to keep the mine operating, but not capex for growth.
- c. Local office and head office incremental cash costs incurred specifically in running that mine and which would disappear if the mine did not exist.
- d. Product delivery costs to the point of sale, including sales expenses, transport costs, warehousing, loading, unloading, port fees, insurance, direct marketing expenses.
- e. Payment terms, treatment charges, refining charges, penalties and other mechanisms where the price received for a intermediate product, such as a base metals concentrate, is based on the final metal price, such as zinc metal and copper metal, and these cash costs represent the portion of price going to the smelter.
- f. Premiums and by-product credits are deducted from the cash costs (as negative costs)
- g. There can be debate about whether a substantial 'by-product' should be considered in its own right as a stand-alone 'co-products' and if so, how to allocate costs. There seems to be no right and wrong. Instead the key is to understand how it impacts and be consistent.
- h. Some customers incur costs or benefits in consuming a feed material that are far greater than the penalties and premiums built into the pricing mechanism. High ash coking coal for example may cost the blast furnace \$30 per tonne in energy and limestone but have a standard price penalty of only \$10 per tonne. The cost curves should include this \$20 burden as 'value in use', so that the true position of the mineral in the market is assessed.
- i. Some cost curves omit government royalties, but include private royalties. This seems irregular because government royalties are direct, unavoidable cash costs of getting the product to the customer.
- j. Indirect taxes incurred in the operating and ongoing capex should be included.
- k. There will be other expenses that are 'grey' and which could be reasoned either way. They should be included if they are necessarily paid to an external party to get the product to market.

Cash costs do not include: -

- l. Non-cash items such as depreciation, accounting reserves and closure provisions.
- m. Growth capital expenditure
- n. Income tax, international withholding taxes.
- o. Management fees which are not for specific services necessary for the mine to deliver product.

SWOT Analysis

SWOT analysis is a strategic planning method used to evaluate the Strengths, Weaknesses, Opportunities, and Threats facing a mine or new project. It is well described on the Internet, including Wikipedia, so will not be described here.

SWOT analysis is a well proven, simple technique of answering questions in a series of categories to properly understand the business. Templates are available on the Internet. The mine management should directly participate in the company's SWOT analysis both for contributions and for learning. Diagrammatically it has the following form.

	Helpful to achieving objectives	Harmful to achieving objectives
Internal origins	Strengths	Weaknesses
External origins	Opportunities	Threats

Company management needs the SWOT analysis to verify its objectives and to refine/change those which appear inappropriate. It is very powerful tool for mine managers.

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