

Risky business - trends and issues in the geophysical business

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CSEG Geophysics 2002

Introduction

The risk/reward edge is where geophysics meets business. But geophysics does not end where business begins. The practice of geophysics and the practice of business have similar underlying structures and methods. The risk/reward edge is about value and value creation.

What is business?

The simple dictionary definition of business is 'purposeful activity'. The term 'business' is pervasive in society - from common roles and functions (the mind is in the business of learning), to a mission, task, objective (what is your business being here), a field of endeavour (the best in the business), a commercial enterprise (I'm in business), patronage (I'll take my business elsewhere), an affair or matter (strange business here), a personal concern (none of your business), a right (you have no business hitting him), a serious activity requiring time and effort (getting down to business), through to entertainment (show business).

Given that business is a 'purposeful activity' it can be viewed, simply, as applying inputs in order to achieve desired outputs or outcomes. It sounds simple and even natural, but what is the complication? Why doesn't it seem to work that appropriate inputs yield desired outputs? Because business takes place in an uncontrollable setting, what some refer to as the 'real world'. The 'real world' sows chaos in the path of the best-laid plans and activities. Competition and government are the key uncontrollable - and even unpredictable - factors in the real world environment. In business, there is great uncertainty. Doing everything right in business can achieve a wrong result. And doing everything wrong can achieve a desired outcome. Serendipity and luck do play a role. Geophysicists can surely relate to this given statistical drilling success rates, both for anticipated targets and unanticipated but productive finds (that's funny, it looked like a fault on the section).

At its best, business is people working together to efficiently and effectively accomplish more than they are able to as individuals.

What about risk?

Risk is defined as the 'possibility of loss', an 'exposure to danger'. Risk factors are variables whose uncertainty is a source of risk. Many different investment risk factors exist, including political, concentration, inflation, interest rate, credit, market, liquidity, and investment loss.

The natural law of risk vs. reward is a continuum from low risk/low reward through high risk/high reward. Because one cannot expect something for nothing, risk/reward sets expectations. The greater the risk one is willing to take, the greater the possibility of gain. Quantifying both risk and reward relies on individual perception.

Modeling business to reduce risk

In geophysics, models are often built to predict responses and manage risk. Business can also be modeled. Let's step back and review business model theory. A model of 'purposeful activity' or business is a representation or simulation of a particular business concept. To have business validity, a business model must yield a value proposition to customers. A value proposition provides a product or service to a customer that sells for more than its costs. Ultimately, profit measures the effectiveness and sustainability of the value proposition. A business model has two key controllable inputs, capital and labour (people). A business model must also account for two key uncontrollable operating environment factors,

government and competition. The third dimension to the flat model is time.

Again, as in geophysics, a business model attempts to incorporate many elements and variables, and can easily be defeated by the complexities of the real world. From the model a strategy of action is decided. The ability to excellently execute that strategy is just as important if the reward is to be achieved (just ask the drilling engineer). Ultimately, in the real world, serendipity and luck play a role.

In reality, business is a balancing of the vested interests of a number of stakeholders. These include: shareholders/owners, employees, customers, suppliers, creditors, the enterprise, and government. The reality of geophysics also balances many interests. Are locations always picked purely on science? Or do land positions, government, facilities, timing, and partners sometimes come into play too.

The purpose of a business model is to examine the validity of a value proposition. The purpose of business is (arguably) the creation of value. Value creation is facilitated by competitive advantages, which boil down to unique (versus the competition) offerings. Note that the mere pursuit of profit, rather than value creation, tends to be an unsustainable activity.

Value is in the eye of the geophysicist

Value (in the context of the value proposition) is created when what is produced is valued by a customer. But for value to be created, that something must sell for more than the cost of its inputs. The problem with measuring value, is that value is only what a person perceives it to be. Therefore, the customer defines value. Value also has a time dimension, as in sooner vs. later or short-term vs. long-term. Value is not cost; the lowest price may not be the best value.

Is it about the risk?

For geophysicists in the oil and gas business, value may be defined as using geophysical knowledge to minimize the risk of dry holes, or using geophysical knowledge to improve the reservoir model, or applying technology and knowledge to understand and quantify risk. It's all about reducing the risk, or at least bringing the risk into balance with the possible reward. Risk reduction is at the heart of applied geophysics.

One key to creating value, including the risk reduction that the geophysicist values, is to have a competitive business advantage. Such a business advantage is ideally unique, and not easily copied; it's what the venture capitalists call a 'barrier to entry'. In the geo-industry competitive advantages may include R&D, fast systems/structure, flexibility, talent, and (to a small extent) patents and trademarks.

Or is it about the reward?

Profit measures how much value one has created. Profit measures the efficiency, effectiveness, and competitiveness of an organization. Contrary to many public perceptions, profit is not an additional cost; it's the fruit of a productive activity. Considering all the difficulties along the way, it's a wonder that companies can actually achieve any profit. Many don't. And many that do, don't earn enough profit to return the cost of capital utilized.

Competition – the paradox of risk/reward

In business model theory, the business playing field is highly influenced by competition, and so a good business model must account for competition. There are few areas of business where selling price is not determined by competition, both directly and through substitute products or services. Unique business offerings are rare, and can theoretically set their own price, but in reality they are governed by competition from substitutes and from fear of attracting competition - if the profits are too lucrative. Without competition business performance is seldom optimal. Even if one is dealing with the best supplier one benefits from the competition of other suppliers. Especially if the proverbial bus hits that best supplier. Healthy competition amongst suppliers has enormous benefits for customers. Competition also sparks innovation. The same could be said for competition among geophysicists at rival oil companies.

The geophysics of business

Geophysicists are engaged in purposeful activity. Geophysicists, as knowledge workers, have an overwhelmingly strong effect, through their performance, on the success of the business value proposition. Individual performance is a risk to the achievement of that value proposition. *So what do geophysicists need to know about business? What they already know about geophysics.* There are inputs, environment variables (such as government and competition), execution, and outputs or outcomes. They also cannot forget the natural law of risk vs. reward. Competition sharpens the risk vs. reward edge. Geophysicists already know about competition, be it jobs, grades, land sales, or capital investment. Geophysicists already know about profit, they already know about the risk/reward continuum.

Geophysicists do not need to be 'experts in the business arena', but they need to be clear on how value is created in their organization, and in their career. The balance between risk vs. reward, between efforts vs. results, and between cost vs. value help to 'determine the best balance in the field and fiscal prudence'. That balancing is the heart of an interpreter's world. Just as one does not need to be a geologist to take advantage of geologic knowledge, one does not need to be a business expert to make use of business knowledge.

Geophysicists can benefit from an understanding of management theory. Management deals with the procurement, allocation, and application of limited resources or inputs (capital, equipment, people, etc) to the goals of the organization. Managers use variations of the scientific method to attempt 'purposeful activity'. Edwards Deming's technique illustrates this (scientific method) management cycling process, which he laid out as: plan, do, study, and act.

R & D – another risk/reward balancing act

A common contention, historically used to justify research, is that R&D generates the technology that will ensure profitability in the future. But often profit did not follow research, possibly because researchers were not connected to what was required to create value. Maybe the results were not there or the decision makers did not know the results that were there (maybe marketing failed to get the word out?)

What future is there for geophysical R&D? Outside academia the future is bleak. Commercial firms, when there is little or no profitability, are unable to rationalize the economics of R&D. It's discouraging, but without a clear technical application of R&D, justification of R&D is tough. In business, unless R&D science is transformed into technology through a rigid commercialization process, value is not typically created. Over the years geophysicists have been great consumers of technology, that is other industries' research. And technology has been valuable to their endeavours. *A common complaint in the geo-industry is that the industry expects the contractors to do R&D, but the customers are not willing to pay for R&D. Welcome to the free market. What customers are really saying is that if there is no value generated*

from the R&D, the customer will not pay for it. R&D, if executed properly, can be a competitive advantage.

The commoditization of geophysics

It seems a current trend that professional services are becoming commoditized. Who knows why? Is practice making perfect, or at least replicable? To the extent that professional services are commodities, the laws of supply and demand take over, and prices rise and fall accordingly. Low bid gets the job. The market obviously does not recognize a differentiation in value when low bid gets the job (or is it that cost is the only value for Larry LowBid?). This commoditization, if on a level playing field, leads to consolidation of companies within the industry. In commoditization scenarios, size matters, so companies consolidate in order to compete. Consolidation seeks to derive value primarily through economies of scale.

How can the trend to commoditize geophysical professional services be combatted? Contractors in the technical disciplines sometimes overlook customer service until commoditization takes effect and only then is customer service pursued as a way to gain a competitive advantage. Other methods of fighting commoditization include technical knowledge, turnaround, and working relationships. Working relationships provide value to the customer because they mean less effort in the reinventing of process, less communication required, fewer silly questions, no repeat explanations, intuitive service and competence. In other words, trust.

Conclusions - keep your eye on the prize

In working toward any desired outcome, one needs to know where one is going; what that desired outcome is. If an organization exists to achieve a desired outcome it should be structured to that end. This structure would include: clear vision, mission, strategy, goals; focus on results; clear, timely, measurement methodology; and timely, transparent information sharing systems (communication). In the geo-industry prized attributes include flexibility, communication, speed, trust/confidence (internal and external), organizational and individual knowledge, experience, and skill. Open book management offers data and information that will benefit people in doing their jobs and make it easily available to them. In addition to making it available, usually the employee needs some training in how to interpret the information and thereby use it to help their individual, unit, and company performance.

Employees should be concerned with and seek to understand the business model that is followed by their employers, and employers should be concerned with and find ways to effectively communicate their business model, strategies and goals to their employees.

If a geophysicist (or any employee) understands how to create value, he can align his efforts and energies and outputs appropriately. In order for one to contribute to the organization's success, one must know what drives that success. Like geophysical models, equitable business models, wherein the risks and rewards from the value proposition are fairly allocated to the input factors, are key to balancing risk and reward.

At the risk/reward edge, one can lead or one can bleed. Organizations lead with competitive advantages that enhance profitability or they can bleed 'red ink', if the risk is greater than the reward. Where is right balance? In the competitive environment in which we all operate, awareness of where the edge is or might be is crucial.

Conscious and constant evaluation of how and where value is created is critical to geophysical and business success. Value creation should be a conscious act for all employees. So what's in it for those employees? Perhaps challenging, meaningful work through which they expand their knowledge and make a difference.

Acknowledgements

I greatly appreciate the helpful comments and advice from Jan Dewar.

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