

Outside-In Strategic Modeling

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The roots of good strategic decision making are in cultural and organizational norms and patterns. One principle, which we call the outside-in strategic perspective, is essential for excellent strategy. This perspective led a company to recognize that its current strategy was counterproductive and that it must make almost a 180-degree turn. While many companies start with themselves and project market shares, earnings, and so forth out into the environment, the outside-in strategic perspective reverses this to start with the environment and work inwards to the company. In this case, we used a framework that starts with consumer spending in various entertainment areas and divided revenues along a simple value chain of retailers, wholesalers, and producers. An influence-diagram-based model led to counter-intuitive insights about the most valuable segments.

People naturally tend to view the world from where they stand. For example, who do you think are the major competitors for Jaguar cars? Your first response might be Mercedes, Ferrari, and other high-end car manufacturers. This is

the inside-out perspective, starting from where a business stands and projecting outwards. The outside-in perspective reverses this, starting with the motivations and forces on potential customers and working backwards to the implications for

the company. From this perspective, Jaguar's major competitors are yacht manufacturers, purveyors of vacation homes, and others who sell expensive toys to wealthy individuals who make choices about what kinds of expensive activities to pursue with large amounts of discretionary time and money.

This difference of perspective matters. Most companies and indeed industries are made or destroyed based on outside changes. Here are historical examples: Canal boat companies once dominated Europe, but railroads changed the world of transportation. During the industrial revolution, motors were centralized, with systems of belts distributing the power to many machines, such as carding machines, spinning machines, and looms. Today motors are ubiquitous, in everything from automobiles to vacuum cleaners. The more recent shift from centralized mainframe computers to PCs and ubiquitous microchips echoes this pattern. From a historical perspective, this shift from mainframe computing was almost predictable.

In corporate decision making, an inside-out perspective often leads to poor decision making. Often corporate leaders are surprised to find that the future they envisioned has not become a reality. They are shocked by unexpected events, such as the closing of the Suez Canal, the dramatic decrease in oil prices, or the breakup of the Soviet Union. With hindsight, the causes of each of these events are fairly clear, so why were they unanticipated? Lack of an outside-in perspective.

The rapid fall of oil prices in the early '80s revealed how companies can go astray and lose their perspective. After the

mid-east oil crisis developed in the mid-'70s, oil prices began a steady climb (Figure 1). Initially oil executives' plans were upset by the new price regime, but they soon accommodated to it and rearranged their business strategies and operations to take advantage of the new conditions. Most oil executives believed, and wanted to believe, that these conditions would go on forever. However, several energy economists pointed out that the law of supply and demand was not broken, but because of the long lead times in bringing on new energy supplies, the forces to restore competitive prices would take quite a few years to build strength. Yet most of those in the oil industry, an industry in which firms make investments that last 30 years or more, continued to believe and act as though prices would remain high forever. Their inside-out perspective combined with their self-interest in things remaining unchanged blinded them to a reasonably predictable shift in the economic reality of their industry.

During this era, one of us (Jim) had visited the forecasting and planning department of a major oil company. The planners proudly displayed a probabilistic forecast of oil prices a couple of decades into the future and explained how their forecasting system simultaneously incorporated forecasts of economic growth rates and other key factors. It all looked good until they expressed the caveat, "If a major event occurs, such as a war or other disruption of the orderly progress, all bets are off." They had forecast the uncertainty fuzz around business as usual but took no responsibility for accounting for the kinds of events that throw forecasts into a

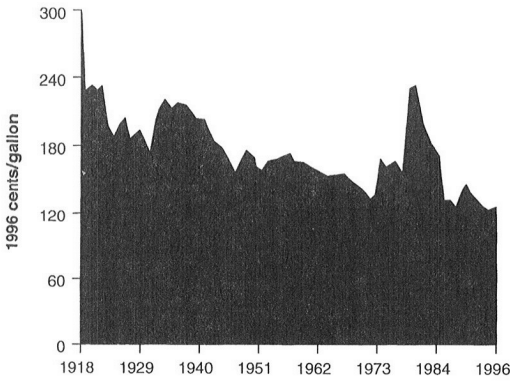


Figure 1: 1981 to 1996, US pump prices for gasoline. In the late '70s oil executives believed prices would remain high indefinitely. From *The Cost of Motor Gasoline to Consumers 1996 Review*, American Petroleum Institute, May 1997.

cocked hat! This is another manifestation of inside-out perspective. What the strategy executives most need to know is exactly what the forecasters left out—an understanding of what outside or unusual events are likely to upset business as usual.

Are these executives dumb? No. Rather, we believe that they are highly intelligent people in organizations whose habits result in poor perceptions and ineffective actions.

Decision Making

Most decisions are made under conditions of urgency and overload. In our modern downsized business world, we are trying to do more with less as we face increasing pressure from global competition. Some of the conditions or behaviors that lead to poor decisions are urgency, incrementalism, availability bias, groupthink, and existential ignorance. Because a situation is urgent, we don't have time to do it right the first time. We are faced with immediate situations and want solutions

now. We rarely take the time to look more broadly. We assume the world will evolve slowly and that incremental improvement will maintain our competitiveness and profitability. We think the future will be pretty much like the past and continue to apply old solutions. We rely on an unstated assumption that business will go on as usual. Because of an availability bias, we focus on the things around us and the things we have already encountered. Our range of experience limits our imagination. We are prey to groupthink, reinforcing the perceptions and opinions of those around us and rejecting outside perceptions that seem inconsistent with our inside worldview. We develop a set of group beliefs, many implicit, based partly on wishful thinking and cognitive dissonance. We suffer from existential ignorance. We cannot know what we do not know. We have limited tools to get outside ourselves. We may even score ourselves as high on outside-in perspective because we are ignorant of what is outside our horizon of perception.

The situation is difficult but not hopeless. There is a significant literature devoted to understanding and addressing these issues. Russo and Schoemaker [1989] have summarized much of the important and extensive psychological work in this area in a very accessible way, as has Teisberg [1991]. Argyris [1990] and others have shown how companies can get trapped in counterproductive patterns. Porter's [1985] work on competitive advantage focuses on understanding the industry and the value chain. Scenario planning can be helpful in overcoming some of these biases [Schwartz 1991] and helped

Shell through the oil crisis [Wack 1985]. Hamel and Prahalad [1994] have also made important contributions to looking at one's industry in a new light.

In our book *The Smart Organization* [Matheson and Matheson 1998], we focus on the interplay between strategy and organizational norms and principles. One of the nine principles is the outside-in strategic perspective, which is supported by an influence diagram [Matheson and Howard 1983; Howard 1988] based on modeling discipline. It provides one systematic way for businesses to get better strategic perspectives.

The Ages Business Case

In several strategic business situations, an outside-in modeling approach has been very effective. We shall illustrate the approach with a real but disguised business example, the Ages case. Ages Incorporated is one of only a half dozen major video-game-software companies in the world. Video-game software is a hit-driven business with small margins and wild swings in profitability. Each new game requires huge investments in development, advertising, and distribution. Ages managers have learned that for success they must extract every penny from every successful game by exploiting every distribution platform from video arcades to home game systems to home computers. Only a few companies with the resources to place a lot of bets have the staying power to live through the ravines.

Ages' business was being threatened. Since the late '80s, it had been on a slow slide of declining profit. Creative and engineering employees were demanding a bigger slice of the upside revenue without

sharing downside risk: when a game was wildly successful, they wanted a piece of the gross revenue, but when it flopped, they would not bear the costs. The executives were afraid that the old distribution infrastructure and relationships based on retail outlets were becoming less important as the technology shifted to games being played and distributed over the Internet or as part of a cable-TV-like subscription service. Desktop production technology was simultaneously increasing the quality and number of low-budget independent producers. The result was increasing risk and decreasing margin for Ages. These forces precipitated a strategic crisis around 1997, which Ages' top managers had been unable to resolve. They were working harder and faster. They developed and funded all kinds of new deals, but resources were spread too thin and their output of games was sporadic and unfocused. They were learning that even a succession of good deals did not necessarily add up to a winning strategy.

At great expense of time, attention, and money, they had engaged all their managers in team-building activities. This resulted in shared agreements to work harder and work together, but if anything, it amplified the managers' internal focuses. In the absence of any real strategic guidance, individuals drifted back to pushing their personal agendas. They became cynical and lost the gain from the positive attitudes they had had coming out of the team-building retreats.

The Strategic Modeling Approach

At this point, Ages finally took the time to develop a top-level strategy. The strategy-development process used many

tools to break managers out of their narrow inside-out frame. In our book *The Smart Organization*, we present the dialogue-decision process and many useful tools to get management to think more strategically. In this paper, we focus on the contribution of outside-in strategic modeling.

Outside-in strategic modeling begins with what is happening with the ultimate customer, examines the forces shaping ultimate demand, and works back to the products and strategy of the enterprise. One of the key tasks leading into formal modeling is to gain perspective on the sources of uncertainty driving change. The "clairvoyant question" elicits the outside-in perspective:

In a few hours, a clairvoyant will enter the room and answer a few well-specified questions for us. She will answer only questions of fact that she can see in her crystal ball, ones that can be answered by yes or no or a number. She will not give us advice about what to do or tell us directly or indirectly what we will do. To prepare us for her arrival, our job for the next few hours is to develop and prioritize a set of questions that would be of highest value in selecting our strategy.

It would be wasteful to ask a question about something we already know the answer to or about something not critical to our strategic decisions. So in setting an outside perspective, we focus conversation on the most critical uncertainties. These are factors we need to model and about which we need to seek further information. For Ages, the questions included the following (developed in 1997):

- (1) In 2000, what will be the shares of the top 10 video game producers in the United States?
- (2) In 2000, how will worldwide sales

break down between domestic, European, Asian, and Latin American markets?

- (3) What percentage of the home video-game market will be on CD-ROM in the year 1997? In 2000?
- (4) In 2000, how many interactive homes will be connected, and what will be the total paid by the consumer for games through network based channels?
- (5) In 2000, what percentage of desktop games will be produced by the independents?
- (6) In 2000, will games generally be distributed electronically to arcades?

This list showed us many of the key factors that had to be included in the model. However, a true outside-in model must get behind these questions to the root causes of change. We used additional tools and discussion to identify key issues and challenges regarding the international marketplace, product development and distribution, and new technologies. About a half-dozen task forces were set up to explore these areas, which in turn tapped over 50 internal and external experts.

The Outside-In Influence Diagram

Our next step was to capture the structure of an outside-in model in an influence diagram (Figure 2). This influence diagram showed a high-level view of Ages' ultimate marketplace. In terms of framing, Ages managers viewed themselves not just as players in the current games industry, but as long-run participants in the entertainment industry. Then with outside-in thinking, they began at the right side of the figure to develop a basic understanding of consumer spending on various forms of entertainment and to model these in terms of underlying drivers of change,

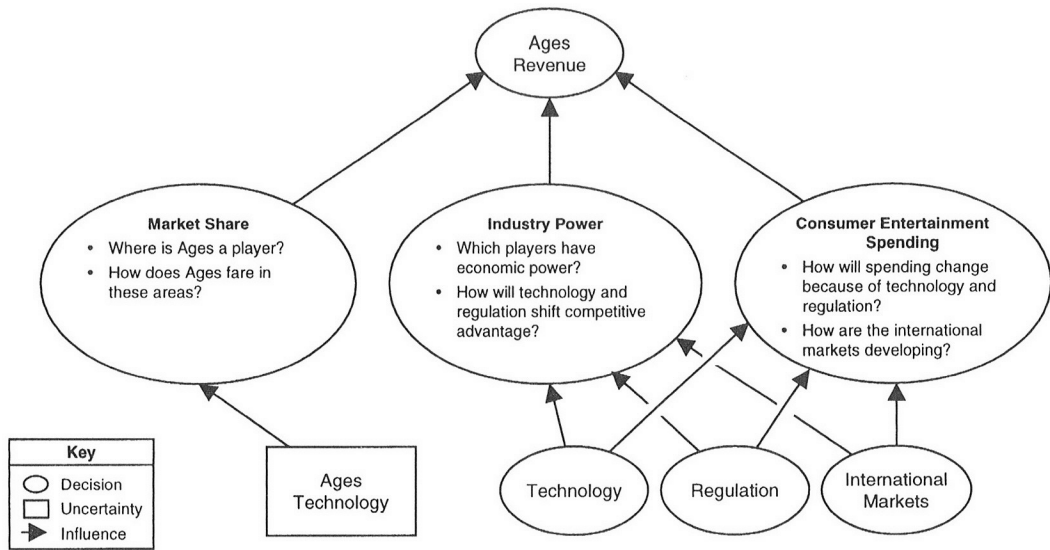


Figure 2: Ages faces a great deal of uncertainty in its environment and can influence only which segments it participates in.

such as technology, regulation, and the rapid development of new international markets. They divided consumer spending into several revenue streams, such as arcade spending, electronic distribution, home computer spending, and specialized-game-systems spending. Since at least 50 percent of the games market would be domestic for the foreseeable future, they divided geography into two regions, domestic and a growing international segment. Additional considerations in assessing sizes of these revenue streams included the following: Will arcades be displaced by home technology? Will home computers cannibalize other forms of entertainment or make the pie bigger? How will consumers react to the cost of new media? How much do international economies grow? Will electronic distribution take off?

After extensive information development and discussion within the task

forces, top managers assessed several revenue streams, such as the arcade-game revenue (Figure 3). We considered three streams for each assessment: one base case (50–50), one low case (10-percent probability of a lower result), and one high case (10-percent probability of a higher result). We had extensive footnotes about the factors creating the uncertainty so that dependencies could be taken into account in the evaluation of alternatives (Figure 4).

Industry Power

The second step in developing the outside-in model was to understand how the different futures represented by the revenue streams would affect the balance of power in the industry. The industry power assessment expresses the importance of each type of player in each revenue stream. We used the following types of players, based on a simple value chain: Producers (new video-game production, and the library of already popular games),

Wholesalers (internet game networks and packagers of physical media), and Retailers (arcades, consumer outlets, cable operators, telephone companies, and Internet service providers).

Using these distinctions, we then assessed what fraction of the revenue stream various types of players might obtain. Here are examples of considerations that we used in making these assessments:

- Do regulations favor certain players over others?
- Who are the gatekeepers, if any?
- Do competition and advancing technology shift power to producers?
- Will the proliferation of desktop technology reduce the power of producers?
- How will the industry develop in different regions?

In the case of arcades, the producers sell directly to the major retail arcade chains without giving up a share of the revenue to wholesalers. In other revenue areas, wholesalers capture a major chunk of consumer spending. The relative power of retailers and producers changes in both the low and high cases, with opposite effects in the domestic and international markets. We discussed assessments of this kind until the task forces and executive teams came to common understanding and insights.

Market Share

Only at the last step of outside-in modeling do we introduce the client company. At this point, we did not look at Ages' current participation but where it might participate to realize the biggest profit. So for each of the half-dozen industry reve-

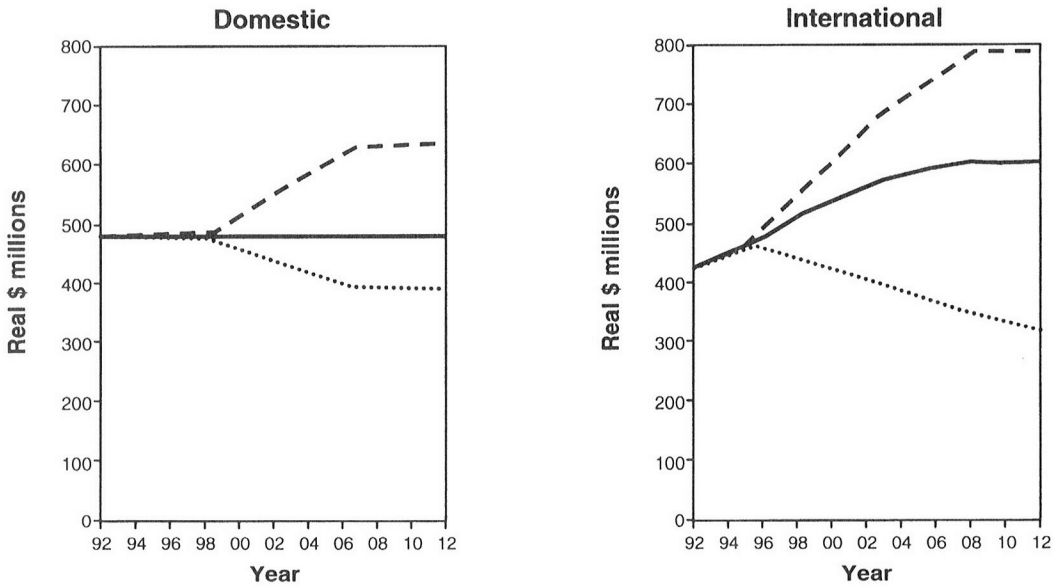


Figure 3: Future arcade game consumer spending was uncertain, but was captured in high, base, and low case scenarios. Here we see three streams for each assessment, one base case (50-50), one low case (10% probability of a lower result), and one high case (10% probability of a higher result). The task forces had extensive footnotes about the factors creating the uncertainty so that dependencies are taken into account in the evaluation of alternatives.

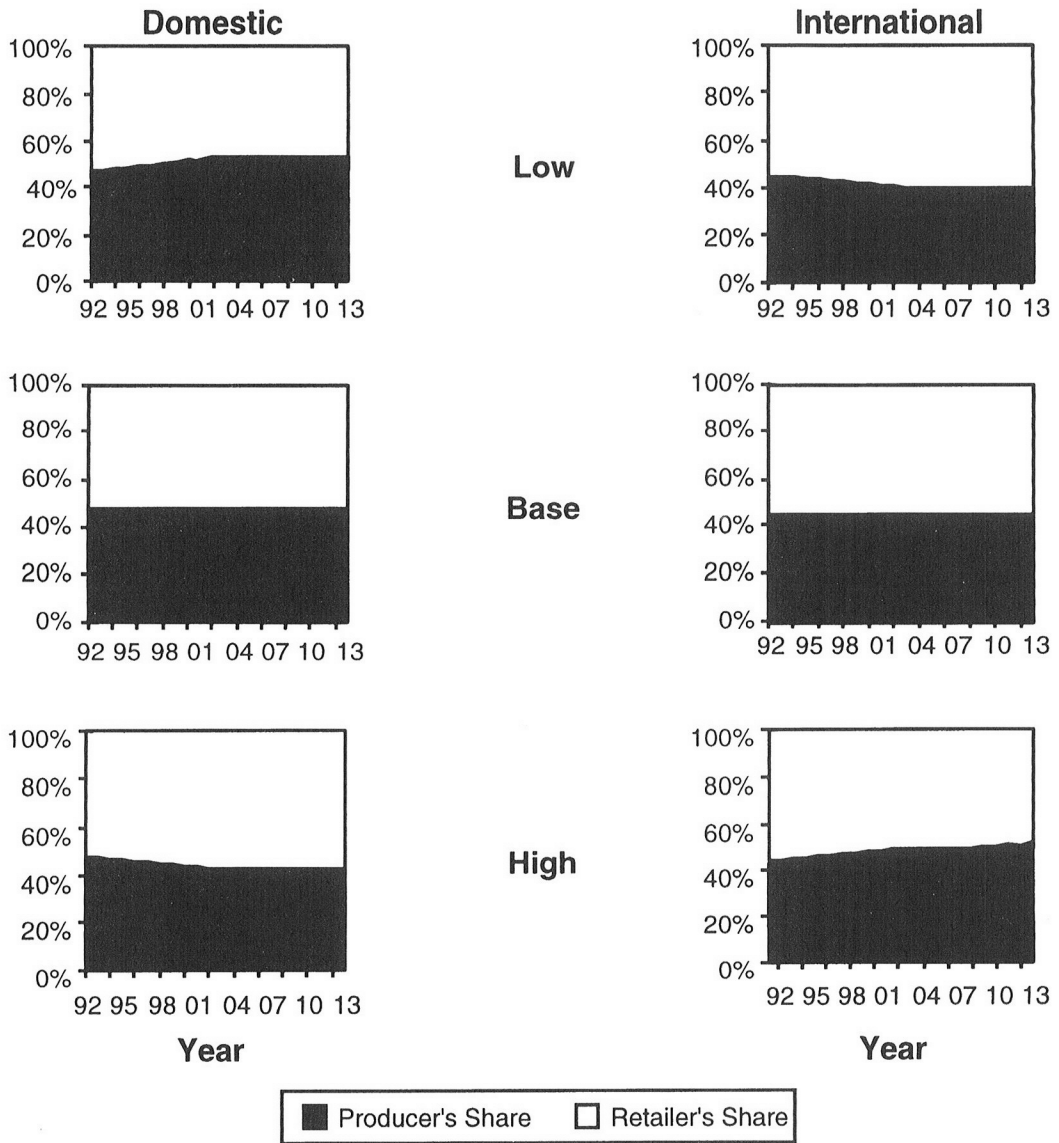


Figure 4: Ages developers' three scenarios for the share of the value chain claimed by producers, wholesalers, and retailers. Because of the close links between the producers and retailers in the arcade game industry, there are no scenarios in which the wholesaler makes a claim.

nue areas, we asked the following questions:

- What is Ages' market share among retailers?
- What is Ages' market share among wholesalers?

—What is Ages' market share among producers?

We developed an Ages' market share model to specify Ages' market share relative to its competition as a function of Ages' strategy for participation in each

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segment and in many cases its strategy for entering completely new segments. Considerations in making these assessments include the following:

- How important is vertical integration?
- How strongly is Ages playing (for example, buying more arcades)?
- Do regulations work for or against Ages?
- How successful is Ages in making products attractive in different regions?
- What competitive strategy is Ages using?
- What is the effect of the domestic arcade share on downstream markets?

From this assessment, we developed representative market-share assessments

(Figure 5). These assessments completed the inputs to the outside-in model. It remained to combine these inputs into a strategic analysis for Ages' business.

Evaluation Highlights

We (Ages) incorporated the outside-in model into a long-term cash-flow analysis of the business under strategic alternatives that were radically different from those Ages originally considered. Following a typical decision-analysis approach, we analyzed these alternatives in a complete probabilistic evaluation of the firm's business potential. The influence diagram structure and outside-in approach made it easy to consider the multiple and interrelated effects of various scenarios for structural change (Figure 6).

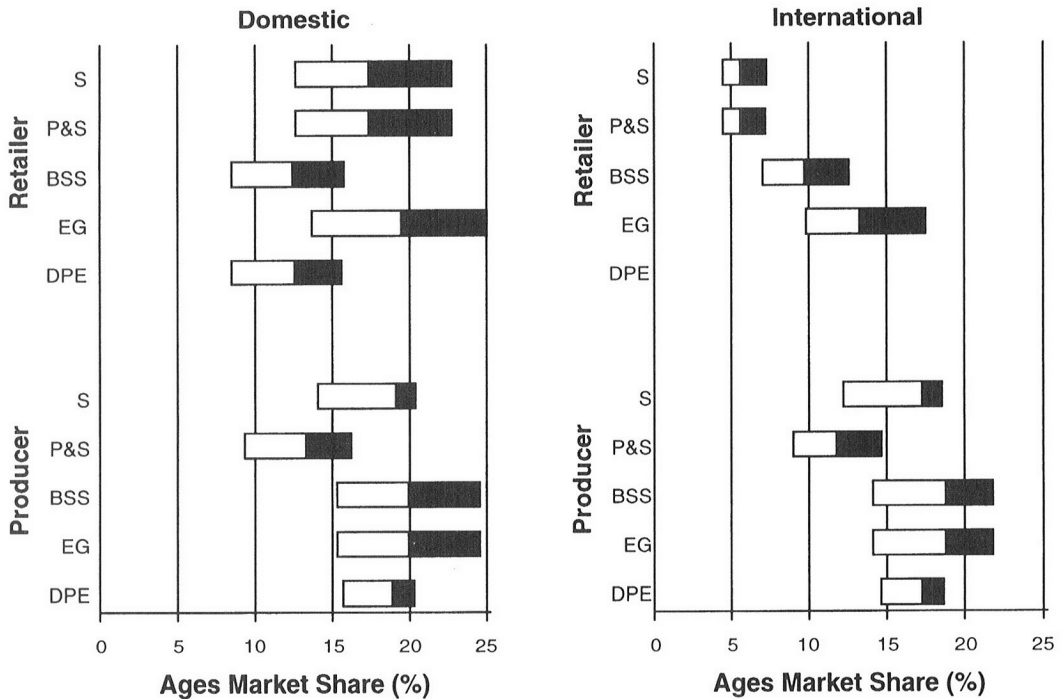


Figure 5: The labels S, P&S, BSS, EG, and DPE are code names given to several strategies for addressing Ages' participation in the entertainment industry. Each bar shows the 10th, 50th, and 90th percentile of the market share forecast. Ages' own strategy was the last thing considered in the outside-in model.

Investment Productivity Charts

Of all the outputs, the investment productivity chart gave us the analytical insight that ultimately caused Ages to completely change its strategy. Under each strategy, we examined each investment segment to determine (1) the net present value of the cost of becoming a significant player in that segment, and (2) the ratio of the net present value of the cash flow resulting from that playing position to this cost. We portrayed these investments in a bar graph ordered in terms of decreasing productivity (Figure 7).

This chart revealed that most of the high-productivity opportunities were in the international arena. It called for a fundamental reexamination of Ages' domestic momentum strategy. However, Ages was concerned about its ability to raise funds called for by the "entertainment giant" strategy. We invented several new strategies by picking off some of the easier-to-accomplish high-profitability investments. One of the new strategies, "capitalize on international growth," created a lot of value on a much lower investment budget (Figure 8).

Reframing the Strategic Outlook

Probably the biggest impact the study had was to convince Ages to reframe its strategic outlook beyond its momentum strategy to incrementally expand its existing base as a domestically-focused producer in two ways: getting into other more-profitable segments of the value chain and entering these markets through early-stage international opportunities. These opportunities are both less costly to enter and have higher growth potential than the domestic ones.

Ages summarized the insight governing its new strategy as follows:

—It should use its unique production assets to profitably benefit from entry into growing international businesses. Only mature producers with substantial annual output and a library of valuable products, such as Ages, have a seat at this table.

—Invest in more profitable and promising businesses. The low margins in the mature game-production business require Ages to get into more profitable, rapidly growing businesses to achieve more attractive returns.

—Emphasize build over buy. Seek to build businesses with high-return potential and low reinvestment requirements in high-growth markets. Stay away from paying retail to acquire ongoing businesses in mature markets.

—Leverage Ages' production assets. Use Ages' ongoing video-game production output and library as agents to get into these other businesses.

—Increase game volume only to feed newly acquired businesses. Given the low profit margins in the game businesses, increase the production volume only to the extent necessary to support Ages' distribution businesses.

—Focus on software profitability before volume. Develop procedures to produce video-game products more efficiently to generate better results.

—Invest in international growth. The international opportunities employ capital most efficiently. Depending on the availability of opportunities and capital, they can be scaled to any investment level. Fur-

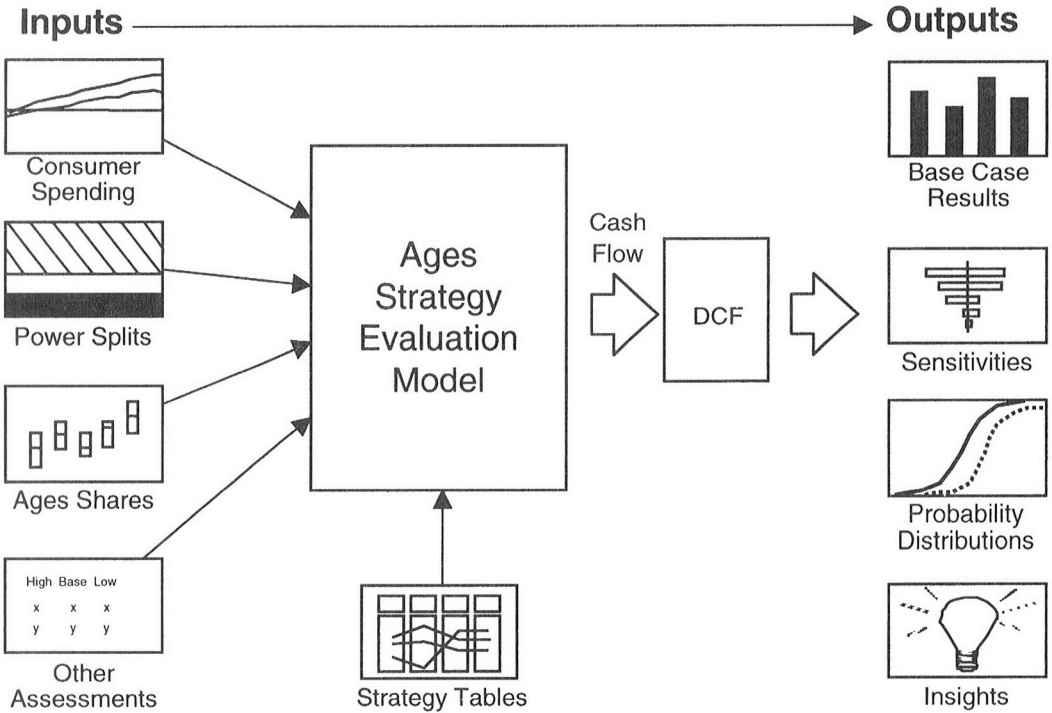


Figure 6: The Ages’ strategy evaluation model took all the inputs from the outside-in perspective, and produced standard decision-analysis output for each strategic alternative.

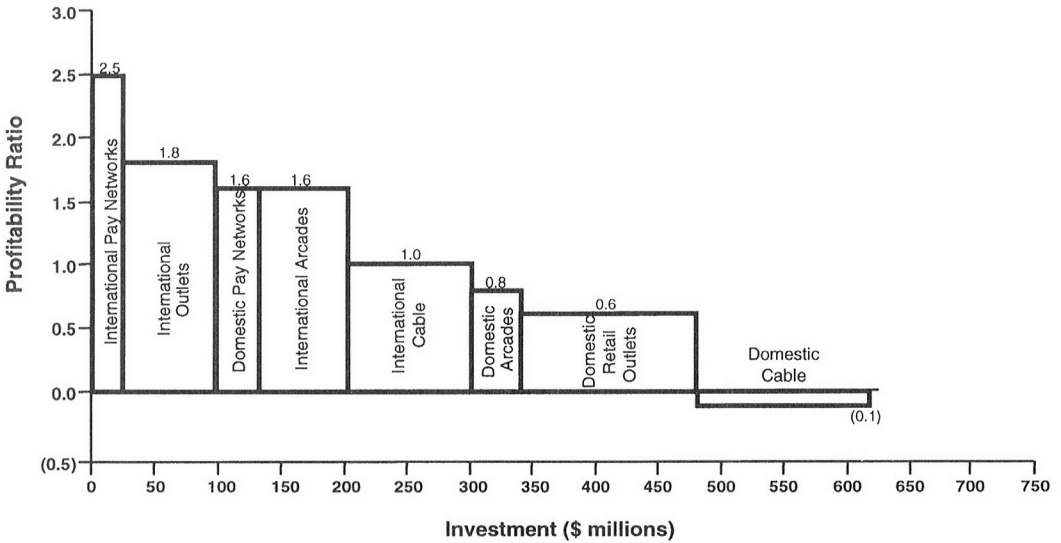


Figure 7: The “entertainment giant” investment productivity chart shows that international pay networks are the most profitable segment, but have limited investment opportunity while domestic cable has ample opportunity for investment, but is unprofitable.

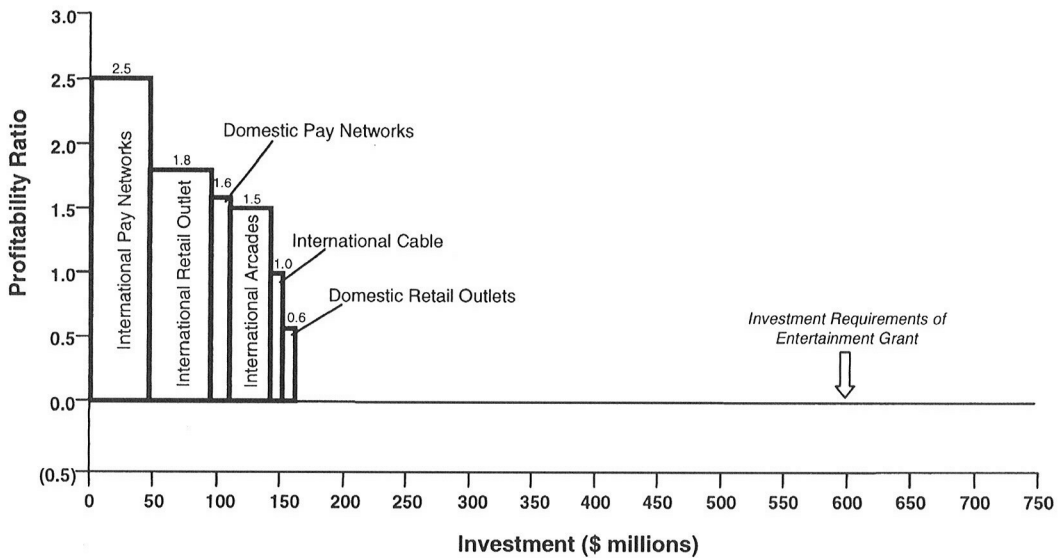


Figure 8: The “capitalize on international growth” investment productivity chart focuses a limited investment in the most productive areas.

thermore, they have the least downside strategic risk.

Ages is a typical case. By starting with an outside-in strategic perspective and by using outside-in strategic modeling to quantify the situation and gain new insights, Ages was able to reinvent itself. Several other applications of this approach have generated new shareholder value in the billions of dollars.

Conclusion

It is becoming an old saw that strategic planning is an oxymoron. Beginning with the current business and incrementally projecting the past will never uncover the real strategic opportunities or threats. Such an inside-out perspective leads to conclusions like that of Charles H. Dell, Commissioner of the US Office of Patents in 1899: “Everything that can be invented has been invented.”

To develop good strategy, a firm must have an outside-in perspective, working inward from the motivation and forces

acting on customers toward the implications for the company. Every industry has its shifts. Some seem fairly predictable: deregulation of utilities, continued integration of the European economy, and so on. Others seem less predictable: the formation of OPEC, the boom in the Internet, and so on. For those with an outside-in perspective, the set of unpredictable things is smaller. Strategies are more robust, and companies are more successful. The Ages case shows how companies that lack an outside-in strategic perspective can head in completely the wrong direction.

Wayne Gretzky, the ice-hockey star, sums up the goal of the outside-in strategic perspective nicely: “I skate where the puck is going to be, not where it has been.”

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