The Business Tool for Knowledge Based Renewal and Development

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Introduction

No one can deny the value of doing things right from the start. It is cost-effective, quality insurance which makes common sense. But, "do it right from the start" is a vague managerial command. Can we make this concept specific? Stephen J. Covey states in his book, The 7 Habits of Highly Effective People, *"All things are created twice. There's a mental or first creation and a physical or second creation… Most business failures begin in the first creation.*" We agree. The goal of this paper is to introduce an expert system that can function as the basis of that critical first mental creation. The Market Value System (MVS) was developed for use by those corporations which recognize that renewal and development are knowledge based functions. MVS is a structure for surfacing and utilizing the experience base of a corporation's professional staff. We believe that the use of this structure will change the current acceptable success/failure ratio of commercial development from 10/90 to 90/10.

In business, doing it right from the start should not mean developing the knowledge and analysis necessary for people to decide which project to select. Thoughts like this anticipate failure and frequently become self-fulfilling prophesies.

The challenge in industry is not to do everything right up-front simply to insure that the company is working in the right area. The challenge is to think specific businesses through so thoroughly, in those areas you have selected, that success always follows. Doing it right from the start means that people have thought everything through in such exhaustive detail that implementation of their business blueprint is actually the second time they have succeeded.

The MARKET VALUE SYSTEM is a tool that enables people to understand past, present and future market value so that they are able to engineer goods and services which will be required in the future. Experiencing mental success insures definitive business blueprints. In most respects, the mental or first creation is more difficult than the physical implementation. Mistakes, roadblocks and chaos are discouraging at this stage. The temptation to jump ahead to doing some physical task which can be more quickly gauged can be overwhelming. However, identifying and correcting mistakes during the mental creation is cheaper, wiser and infinitely more efficient.

MARKET VALUE is defined as relative worth in terms of utility, quality, desirability or importance to the customer. We have found that end-product properties, economic value, and influence can be linked together in an equation that correlates with historical market share. During the past 12 years we have taught a wide variety of businesses to use it to effectively predict future market share and profitability.

Since market value is determined by the final customer's judgment or perception, we have based our market value equation on the judgment of people throughout the entire chain. When the complete market value equation has been developed, conversion curves are prepared to correlate components of the equation with technical and market parameters. In this manner, technology and market parameters are linked to market value.

The mathematical models we develop along with the glossaries and supporting evidence used to prepare the models become knowledge blocks that those who have input their judgment can use to solve complex technical and market puzzles.We have investigated many mathematical scales and have conducted rigorous statistical analyses to prove that the models we produce are true. However, the most interesting facet of our work has been our effort to get people to develop and use their judgment. As a result, we have gained some valuable insights into human behavior patterns and their effect on businesses processes. We present them here as critical elements of the Market Value System.

What the Process Is

The Market Value System uses mathematical models, logic equations and custom glossaries to gather, sort, quantify and evaluate a product's or technology's features, benefits, performance and potential and relate all these factors to market needs.

The process begins with the identification of the problem to be solved and the creation of templates which will be used to quantify the judgment of an expert team. Once the templates are complete, expert teams are formed from within the ranks of the client corporation and, led by experienced facilitators, the team completes the templates, based on their knowledge, experience and judgment and with a greater than 70% confidence level in the knowledge blocks produced.

This is accomplished by training the team to assign numerical judgment values (not guesses) to properties of the target technology which have been

structured into an interrelated series of spreadsheet-like templates. The sequence of these problem-solving sessions moves from the particular, discussing and evaluating anywhere from 40 to 70 subfactors; to the general, extracting expert judgments on 7 to 10 primary factors; back to the particular, adjusting and weighting the subfactor values with the primary factor scale. This produces a set of mathematical models with a high level of detail and complexity which can be used to prepare business blueprints.

This process objectively surfaces complete pictures of future businesses and technologies which may be quite different than prevailing thought. The final phase correlates this knowledge with the market population.

What The Market Value System Is Not

It is not simple. We emphatically reject the KISS (Keep it simple, stupid!) theory. When told to keep it simple, stupid, one must ask who is being considered stupid. We're not stupid; our customers aren't stupid, and we don't wish to deal with anyone who is stupid.

It is not filled with buzzwords. Henry Mintzberg, in an excellent article on Management in the July/August 1996 issue of Harvard Business Review, points out: "Buzzwords are the problem, not the solution. Hot techniques dazzle us, then fizzle… If you really want to adopt a new technique, don't use its usual name, especially with a de- or re-. Call it something completely different. Then you will have to explain it, which means you will have to think about it."

The Market Value System is not focused on managing money. Unless you are the US Mint, your job is not to make money, but to deliver value to your customers. The only way to sustain profitability is to deliver (and be perceived as delivering) value. Consolidated income summaries and balance sheets are progress reports. These reports are prepared after creative work is complete and products are launched. Companies need predictive tools to convert judgment into financial data so that problems can be recognized and corrective action taken before the month, quarter or year begins.

The Market Value System is not "one size fits all." Although it is necessary to know the best practices of your industry, maintain total quality, and be aware of past successful strategies, blind faith in the latest management fad can be dangerous. Projections based on historical data or success in other arenas, do not take into account the complex dynamics of any particular situation. When we begin a project to help a company develop its business blueprint to attack a strategic target, we study all internal and external information about the complete subject so that we can write comprehensive glossaries of terms that describe each piece of the Market Value Equation. This usually takes about three months but the result is a structure for building knowledge blocks tailored to solving a specific puzzle. And it works!

Knowledge Based Renewal and Development

We all know that there is an information explosion and are conscious of the many systems being developed to enable people to acquire as much information as possible. Knowledge-based renewal and development encourages people to envision the form of the information they seek before spending resources to acquire it. We have found that it is not uncommon for people to spend their entire market research budget to acquire information only to say that they didn't learn anything new after they acquired it.

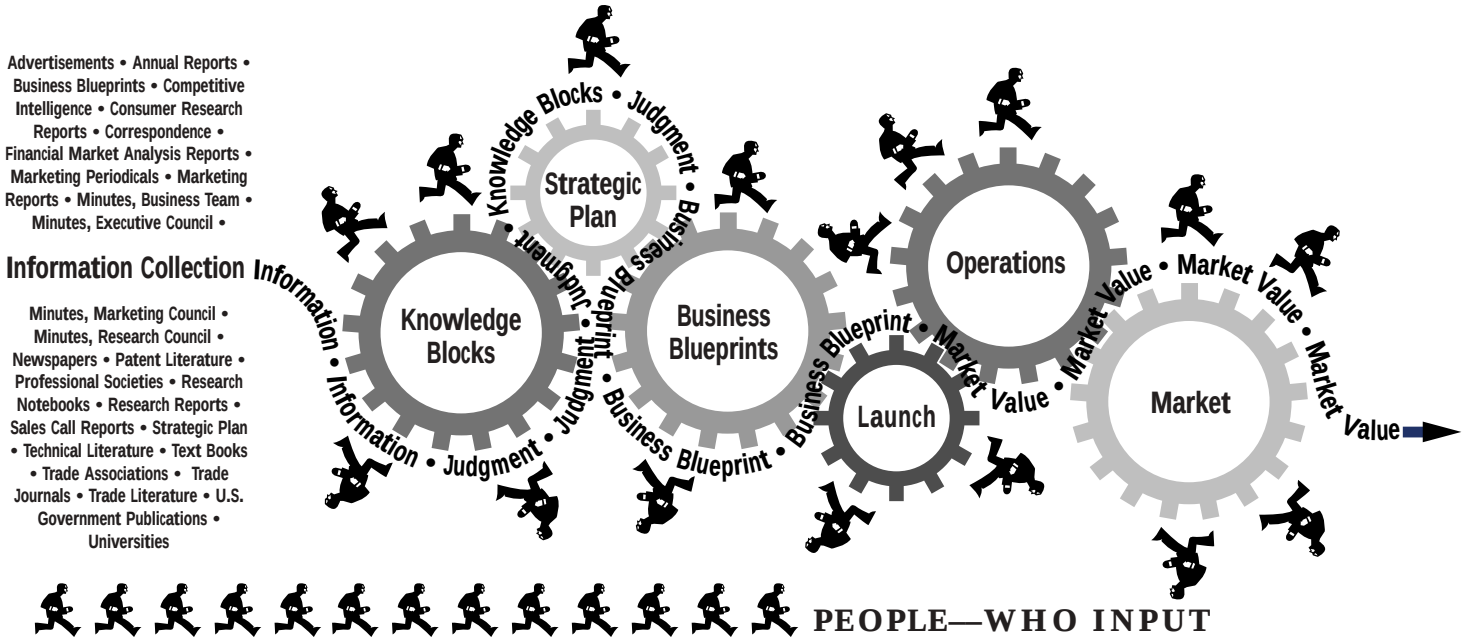
Despite their unending thirst for more information, most managers tend to discount it and would rather rely on their own know-how. The Market Value System takes advantage of this trait by providing people with a structure for each block of knowledge that enables them to input their own judgment in the universal language of mathematics.

The schematic diagram on page 3 illustrates knowledge-based renewal and development. The chief principle is that knowledge is the building block of everything. People, who input their judgment into knowledge blocks that are used to create market value, power all the gears.

The first gear is the company's knowledge blocks. Knowledge blocks are mathematical models that describe everything that is known about a specific segment of knowledge. Knowledge blocks include all supporting evidence as well as glossaries that define components and instructions concerning their utility. Knowledge blocks must be based on the judgment of experienced professionals.

All of the knowledge blocks required to renew existing businesses and develop new ones are identified by a market value equation that is based on judgment. Information consists of facts, figures and data produced through scientific, market and business research. By itself, information has little value. The

THE MECHANICS OF RENEWAL AND DEVELOPMENT



THEIR JUDGMENT INTO KNOWLEDGE BLOCKS—ARE AN INFINITE POWER SOURCE.

only purpose of information is to provide background material for those who are creating specific blocks of knowledge. The *judgment* of those individuals is of primary importance.

The people who create specific blocks of knowledge can come from anywhere within and outside the company and are the power source that makes knowledge-based renewal and development work. The structure of each knowledge block is designed first, and then people are given background material by those who designed the structure. The people who are creating each block of knowledge can also ask for any additional information they require for them to have confidence in their own judgment.

The approach we developed was so fundamental that we expected most people to embrace this new methodology enthusiastically. We were astonished to discover that a great number of people were hesitant to judge anything. They would say that they didn't know anything outside of their own discipline and consequently wanted to defer to the judgment of market experts and leaders. When forced to voice their judgment, they frequently called it a guess. Since a guess is defined as "an opinion from little or no evidence", they could not have the confidence necessary to implement knowledge-based renewal and development. The result? They work from day-to-day, month-to-month, and year-to-year without thinking everything through and without benefit of a clear vision of success.

What are the conditions that produce judgments rather than guesses? First, it matters who is making the pronouncement. Experience is necessary for judgments. Second, the depth of the parameters and amount of detail to be included determine the structure of judgments. Structure is required for judgments to be more than guesses and within structure, there must be focus. In addition, the individual making the judgment must have confidence that his or her voice counts. The conditions that can produce judgments are: structure, focus and confidence.

The Market Value System provides the structure for the intense level of judgment input required for knowledge-based renewal and development. Focus and confidence are the responsibility of each individual, but corporate management must prove that these are skills they value. When this happens, the corporate power structure should change dramatically. The current paradigm is that those with hierarchical authority make all the decisions. A new paradigm will emerge that relies on individual judgment and requires the involvement of all levels of the professional staff.

However, this does not mean that hierarchical authority will disappear. Those at the top—senior man-

agement—bear the prime responsibility for development, documentation and dissemination of the strategic plan, which is the second gear of knowledge-based renewal and development

Strategic is an adjective or modifier that means "of great importance." A Strategic Plan describes businesses that are or will be of great importance to the corporation. The corporate strategic plan provides both a rallying point and a continuous focus, as well as guide posts to measure progress. There are many criteria that management can use to judge the importance of strategic businesses. Some of these criteria are: • business life cycle status • external forces • management experience • capital requirements • growth potential • market share • capitalization contribution • intellectual assets • physical assets • cash flow contribution • knowledge blocks • profits • competitive strength • liability • skill sets.

Understanding the boundaries or limits of these criteria for today's strategic businesses enables management to establish criteria for future businesses. When businesses are knowledge-based, there are an infinite number of development opportunities. Therefore, it makes good common sense for companies to commission business blueprints directed at achieving their own strategic plan.

Management interest is the only reliable measure to describe the importance of a future business. The challenge is to describe several markets that mesh with management's strategic criteria so that management can indicate which of these markets they consider to be important (strategic).

Presenting a new market to management requires only the commitment to develop a business blueprint that meets the company's strategic criteria. Management need only say that they consider the segment to be strategic, and would be willing to invest in attractive business blueprints that fit within that market. At this point in the process, management has not decided that they will actually invest in the market. They have only authorized people to think everything through so that they can create a specific business blueprint.

A Business Blueprint (the third gear) describes a mentally developed business that equals or surpasses the vision presented to management. The commitment of the development team guarantees that the vision will be achieved according to schedule and within the proposed budget. This commitment is made because an experienced team used knowledge blocks that they know to be true to create their blueprint.

A business blueprint includes the identification of customers who will place a continuing high value on the business' goods and services. It explains the company's sustainable advantage and is sufficient to secure external financing and/or partners if management elects to pursue that course.

It should be apparent that a business blueprint is much different than a typical plan for a development project. Most development projects merely represent a willingness to try to achieve nonspecific objectives when and if management decides to gamble. There generally is not enough detail to elicit a firm commitment from management. Thorough examination of the market value components (performance, economics and influence) provides the detail.

Business blueprints can be prepared on a proactive or ad hoc basis. Business blueprints should only be prepared to fit within those segments that have been judged to be strategic by management. Throughout preparation of a business blueprint, management should be kept informed. When a business blueprint is prepared, it should be brought to management's attention for an investment decision. If the planning process is handled properly, it is likely that management will fund each business blueprint.

The fourth gear is the launch gear, which represents the development phase of a new business. If the launch team has the benefit of a business blueprint, their task is to implement their blueprint in a professional manner. Without a blueprint, everything is a surprise to both the launch team and management. Invariably, everyone gravitates towards the first picture of success that begins to surface, the launch team fritters away its grace period with unfulfilled promises, and management frequently loses interest. Without a business blueprint, companies tend to either understaff or overstaff the launch, and allocate the wrong skills and personnel. All of this increases the likelihood of failure. Doing it right from the start demands a market value, knowledge-based, business blueprint.

When the new business is off and running and no longer fragile, the launch period is complete. At this point the launch team passes the new business to the fifth gear, operations. Actually, it is probably more accurate to say that the launch gear functions as the operations gear during the early fragile period of the business. Many of the people who have been involved with the launch stay with the business after it is established and is able to compete with other businesses for the company's resources. For many years the business desirably remains in a growth mode and consequently consumes

cash that is generated by more mature businesses.

Both the launch and operations are connected with the market, which is the sixth gear. In knowledge-based renewal and development, every person in all of the gears must mentally become the market. Nothing is constructed nor consumed until a business blueprint is formulated, funded and launched. In knowledge-based renewal and development, the company and the market are driven by the same innovation machine.

People throughout the knowledge-based renewal and development machine contribute to knowledge blocks; business blueprints are prepared according to the directives of the company's strategic plan; funding decisions are made; business blueprints are launched; market value is created and then consumed.

Materials and Cost Flow Diagrams

Many companies consider materials and cost flow diagrams to be synonymous with market value. (See illustration below.) Once a materials and cost flow diagram is prepared, people focus all their attention on their own operation and never seem to look at the diagram again. When asked to input their judgment into a structure that is capable of creating definitive knowledge blocks in other operations, many people decline to exercise judgment and all too easily say that they don't know anything about the other operations.

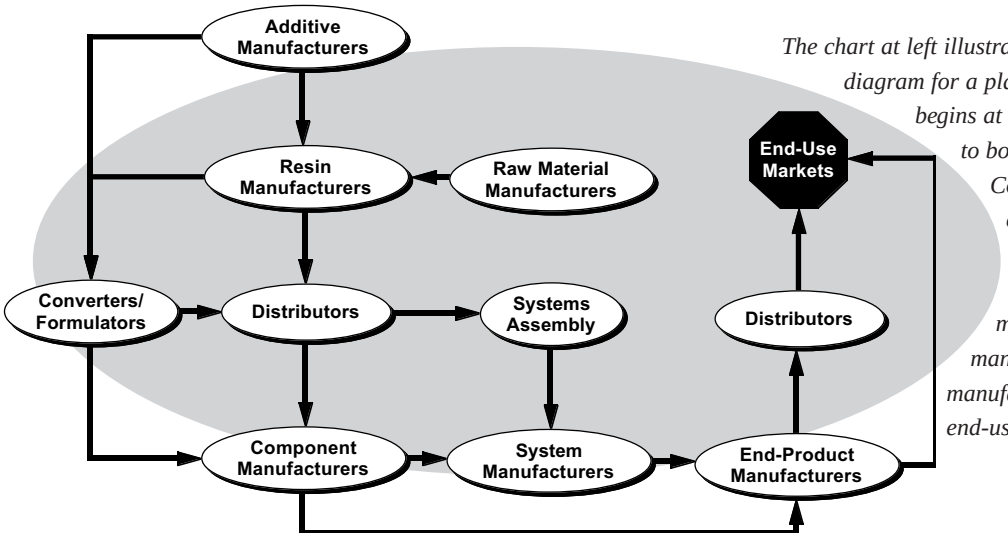
knowledge-based renewal and development requires that everyone input their judgment into each knowledge block required to solve their market value puzzle before going to the market to test their solution.

Market Value Chain

The next chart (page 6, top) illustrates a market value chain for the same plastic product end-use market. It is much different than a materials and cost flow diagram. The objective is to describe all of the properties of the final plastic end-product. The first horizontal row shows that aesthetic, physical, mechanical, chemical and processing properties combine to give consumers the market value they want. The last row shows the importance of each group of properties. For example, aesthetic properties represent 12.7% of what consumers buy; physical properties represent 23.3%.

The first vertical column shows that polymer additives, resins, converters, systems, component and end-product manufacturers contribute to the properties of the final product according to the percentage shown in the remaining columns. The second column shows that 14% of aesthetic properties is contributed by additive manufacturers (aesthetics is 12.7% of the final product, so 14% must be multiplied by 12.7% to arrive at 1.8% of the TMP Value) and 22% of aesthetic properties is contributed by resin manufacturers (again, multiply 22% by the 12.7% contribution of aesthetic properties to arrive at 2.8% of the TMP Value). The last column shows that additive manufacturers contribute 9% of the product's total properties; resin manufacturers contribute 28.1%; converters/formulators contribute 21.5%; component manufacturers contribute 16.9%; system manufacturers contribute 15.9%; and end-product manufacturers contribute 8.5% of consumer market value. It is true that consumers wouldn't receive any of the properties if it wasn't for end-product manufacturers

TRADITIONAL COST FLOW DIAGRAM



The chart at left illustrates a typical materials and cost flow diagram for a plastic product end-use market. The diagram begins at the upper left. Polymer additives are sold to both resin manufacturers and converters. Converters sell plastic materials directly to component manufacturers and through distributors. Component manufacturers sell components directly to end-product manufacturers and through system manufacturers. Finally, end-product manufacturers sell finished products directly to end-use markets and through distributors.

MARKET VALUE CHAIN

	Aesthetic Properties	Physical Properties	Mechanical Properties	Chemical Properties	Processing Properties	TMP Value
Additive Manufacturers	1.8%	0.5%	0.2%	4.6%	2.0%	9.1%
Resin Manufacturers	2.8%	6.0%	4.6%	8.5%	6.2%	28.1%
Converters Formulators	2.5%	6.3%	6.7%	1.6%	4.4%	21.5%
Component Manufacturers	1.4%	5.8%	3.5%	0.8%	5.4%	16.9%
System Manufacturers	1.9%	3.5%	5.7%	0.8%	4.0%	15.9%
End-Product Manufacturers	2.3%	1.2%	2.3%	0%	2.7%	8.5%
Consumer Market A	12.7%	23.3%	23%	16.3%	24.7%	100%

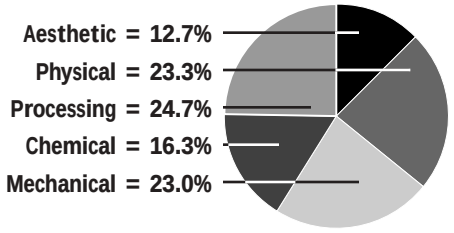
but it is also apparent that all players in a market value chain have a role to play and they must work together to provide the market with the value it wants.

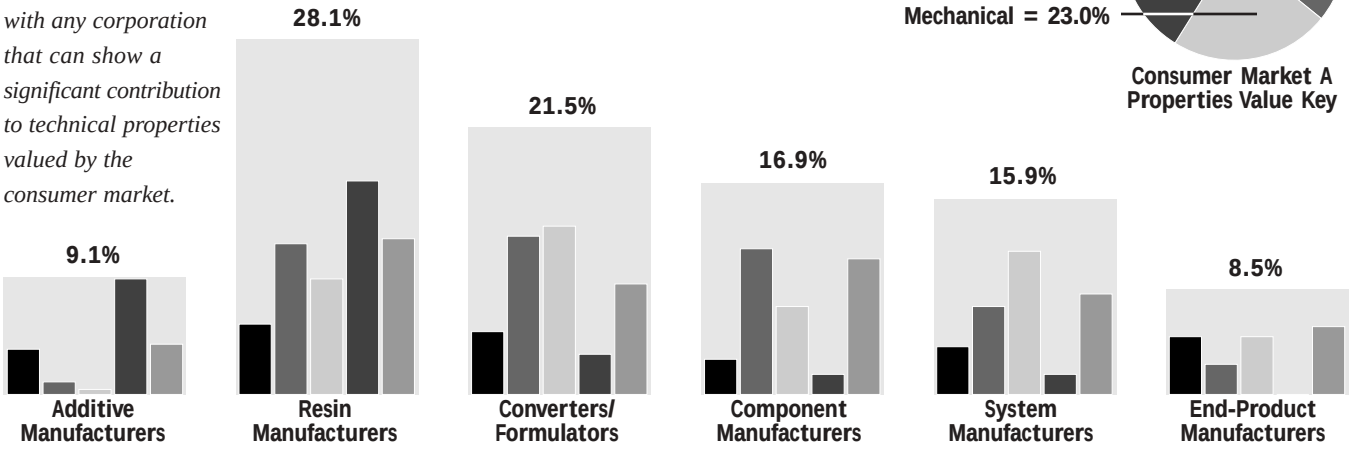
The spreadsheet above is graphically depicted by the bar charts below. Clearly, end-product manufacturers would be interested in speaking directly to resin manufacturers about property specifications if they were aware that they were contributing the lion's share (28.1%) of technical properties valued by the consumer market. The smaller bars indicate that resin manufacturers contribute the major portion of aesthetic, chemical and mechanical properties.

These market value charts are new to industry. They are made possible only by focusing the judgment of people into structures designed to produce blocks of knowledge. We find it very interesting that resin suppliers, whose contribution to end-product properties is more than three times the contribution of end-product manufacturers, frequently have low confidence in their ability to forecast future end-product property requirements. One such resin supplier told us that they constantly throw new resins at converters and then rely on

SHARE OF MARKET VALUE

The chart at top illustrates a market value chain for the same end-use market as the cost flow diagram on page 5. It is graphically depicted by these bar charts. Market value charts are new to industry. End-product manufacturers will be interested in working directly with any corporation that can show a significant contribution to technical properties valued by the consumer market.





the converters to say whether they are interested in working with the resin.

On several occasions we have had the opportunity to work with converters at the same time that we were working with both resin manufacturers and end-product manufacturers. Since each contract was confidential we were not able to talk about our involvement with multiple players in the market value chain. We found that the resin company supplied a converter who had low confidence in their ability to forecast future property needs. The converter was responding to requests from end-product manufacturers who were trading off property improvements for increased throughput. End-product manufacturers told us that they were really interested in understanding future market value, which nobody was attempting to identify.

Experiences like this have led us to advise all players in a market value chain to position themselves to understand and contribute to end-product market value. We firmly believe that companies that learn to do this will be tomorrow's leaders.

Market Value Equation

We have developed a Market Value (MV) Equation that describes market value at each interface of a market chain. The MV Equation identifies all of the knowledge blocks required for a company to position itself as the market value leader in its strategic markets. We have found time and again that MV Totals, determined by means of this MV Equation, correlate with market share and profitability.

MV Total = Properties + Economics + Influence

The mechanics of the Market Value Equation are made simple because the three components represent knowledge blocks (mathematical models) that correlate with everything known about each of the components.

To develop a Market Value Equation for a specific market, an expert team judges the relational importance of the three value components for that market. The initial Market Value Total must equal 100. For example, the properties value may be 40, economics 35 and influence 25. Specialized markets have an economic component with a value of 35 or less. Commodity markets have an economic component with a value of 50 or more. Next, the expert team judges whether the balance is skewed towards properties or influence.

Next, the expert team's properties, economics and influence knowledge blocks are used to adjust the Market Value Total so that it reflects the market value of each alternative being evaluated. Adjusted Market Value Totals for various alternatives typically range from 75 to 125. The Market Value Totals for each competitor are then compared with known market shares and any lack of agreement is resolved through rational argument. Market Value Totals are then determined for the company's and its competitors' future action plans. Future market shares are determined and the company adjusts its action plan to position itself favorably.

Properties

We recommend that all contributors to a market value chain base their commitment and investment on their contribution to the properties of the final product in the market value chain. Technology should be considered a technical lever to produce the desired properties. Technology only has market value if it is the preferred technical lever to produce sought after properties.

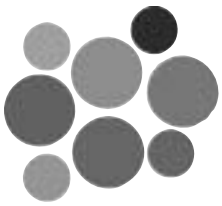
Illustration number 1 on page 8 is a conceptual picture of eight of the primary properties of plastics. The individual circles represent End-Use, Chemical, Aging, Mechanical, Processing, Physical, Electrical, and Thermal properties. Each of these primary properties has a complex structure.

We use the term TMP (Technomarket Profile) Value to describe properties. TMP Value is a scale that links all of a product's properties together (see illustration number 2 on page 8) and correlates them with functional value during the product's use for a specific application. TMP Value is the product. This is what the customer purchases and not the specific widget that embodies the properties.

TMP Values enable competitive products to be compared in great detail and matched with optimum property profiles that meet the long term needs of specific markets. Without the completeness of a TMP Value scale and companion glossary it is improbable that the long term needs of a market can ever be determined.

When we begin a project to help a client develop its business blueprint to attack a strategic target, we study all internal and external information about the complete subject so that we can write comprehensive glossaries of terms that describe each piece of the Market Value Equation. This task is analogous to writing books on specific subjects. We can then discover

SOLVE THE PUZZLE



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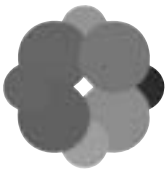

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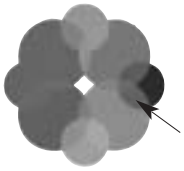

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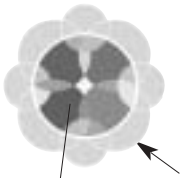

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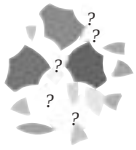

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the interactions between the primary properties and their sub-factors.

In illustration number 4 at left, the gray areas outside the circle suggest information which may be extraneous. The next step is focusing on the critical interrelationships, (shown in illustration 5 at left). Frequently, this is the area where discoveries are made. Most research studies one or two properties with all others held constant. Experiential modeling enables us to investigate full factorial experimental designs.

Studying the interrelationships enables us to discover gaps in combinations of properties. These gaps are then correlated with technical levers and approaches recommended to overcome the gaps.

Doing it right from the start demands the ability to surface a picture and communicate the complex elements of that picture in a fashion which allows all disciplines to input their own judgment. If the form in which our research and analysis is presented is not inter-disciplinary and understandable at all experience levels, its function may be obscured. It is our experience that most corporations do not have effective means of inter-disciplinary communication. Crucial innovation details are often lost in the transfer of information from R&D to Management to Marketing. Just as French is considered the language of diplomacy, German the language of science and English the language of commerce; Mathematics is the universal language of knowledge. This is why the Market Value System, and all our other tools, utilize mathematics as a language.

We have mentioned the reluctance of individuals to voice judgments. As you can imagine, asking for judgments to be voiced on a numerical scale which will then be put into equations and studied, is a hurdle to be overcome at the beginning of our work with most teams.

After one or two modeling sessions, most people welcome our new tools and use them to decipher market value and invent new products and services to fulfill market needs. However, a small but significant vocal minority feels threatened by the level of communication made possible by our models. They recognize that discoveries have been made and new programs formulated. And they admit that in-depth communication, which would have taken a year or more to accomplish without a mathematical structure, has taken place in a matter of days. But old habits die hard and they quickly add that although their knowledge had been communicated to other team members, they had learned nothing new and sometimes even recommend that the effort be abandoned. For these people, their experience and know-how is power not to be shared with others. They don't realize that unless they learn to use their judgment to create tangible knowledge blocks, their experience won't be valued and they will be without power in future organizations.

Another, sometimes silent group initially has little or no confidence in their own judgment. Many of these people build confidence as they experience their own thoughts confirmed in the market. We think that these people lost or never gained confidence in their own judgment because they were exposed to that small vocal minority who considered experience to be power. Since they began their career without experience, their judgment was never sought and they were trained to subject themselves to the judgment of others, who always had more experience. Over time, only the power base within their company was allowed to think and frequently they didn't have any time for that activity.

Economics

Economic value is determined by means of an end-product cost/customer goal ratio. These ratios are very important because they can enable a business to match price with market value to insure that the business controls its own profitability.

The numerator of an economic ratio is the customer's detailed cost picture, which shows all variable and fixed costs associated with the

COMPLEX PUZZLES are not solved hit-and-miss. What's needed is a methodology based on facts and logic: (1) Identify and sort properties. (2) Link everything together. (3) Discover interactions. (4) Exclude irrelevant information. (5) Study interrelationships. (6) Complete a gap analysis.

manufacture, sale and distribution of its own products and services. The denominator deals with the customer's goals and objectives.

The customer's aim is to achieve the best economic ratio for his own business. This can be achieved by improving the numerator (customer's cost of his products and services) or improving the denominator (enabling the customer to achieve his goals and objectives). Economic ratios begin at a level of 1.3 or higher and asymptotically approach a level of 0.8 to 1.0, depending on the nature of the product portfolio and the maturity of the market.

Over the years we have observed a number of behavior patterns concerning economic factors that were of interest to us. Most companies don't understand their own costs. This condition exists at all points in the market value chain, and over the years, has caused people to learn to use simplistic price rather than economic value as their economic criteria.

An air of mystery surrounding economics is encouraged by some corporations and has led to policies of information hoarding. Once again, the corporate culture is such that experience and know-how is seen as power not to be shared with others. Despite this, financial knowledge is required for everyone within a company to contribute to market value.

We find the same reluctance to voice judgment on economic matters, as there is on technical properties. Perhaps more so. Very often, our models require financial knowledge which is not typically available to development teams. Knowledge, in areas such as cost, is assumed to be known very accurately elsewhere in the company. However the cost experts almost always tell us that the company does not have a mechanism capable of determining costs on a product-by-product basis. The advice we give is for business teams to learn to create all the knowledge blocks required for them to be a leader in their market value chain whether or not the information exists in the company or market.

How? Structures can be designed to enable business teams to decipher their own, competitors' and customers' cost positions. This is done by means of deductive reasoning and expert judgment, aided by standards and factors derived from the public domain. The cost data we have been able to generate with these modeling techniques has proven to be accurate to 3 significant figures and has led to the development of managerial accounting systems that have put practitioner business teams in control of their own businesses even if their company restricts access to financial data.

Influence

After considering properties and economics, influence concerns all other factors which are important from the customer's perspective. For example, reputation is built up by progressive successes; therefore, reliable suppliers have the most influence. The assessment of risk versus reward associated with any change, as well as the effect of such changes at each interface of the market value chain are significant influence factors. Most manufacturers avoid complex changes and are motivated to accept products and services that simplify their operation. External forces such as regulatory pressures and other legal matters are influence factors in certain markets. Pressure to recycle plastic packaging is one such influence factor. Professional societies, codes, standards, advertising and the market value chain itself are influence factors.

Influence models and programs are prepared similarly to TMP Values. A glossary which defines all influence factors for the market value chain is written and a structure designed that enables the company's experience base to input their judgment.

The property component of the Market Value Equation provides direction to R&D; economics provides direction to business managers; influence provides direction to marketing. Influence is the forgotten component of many business programs. Frequently, marketing professionals are only brought into a new business development program after several years and significant resources have been spent developing a technology or market.

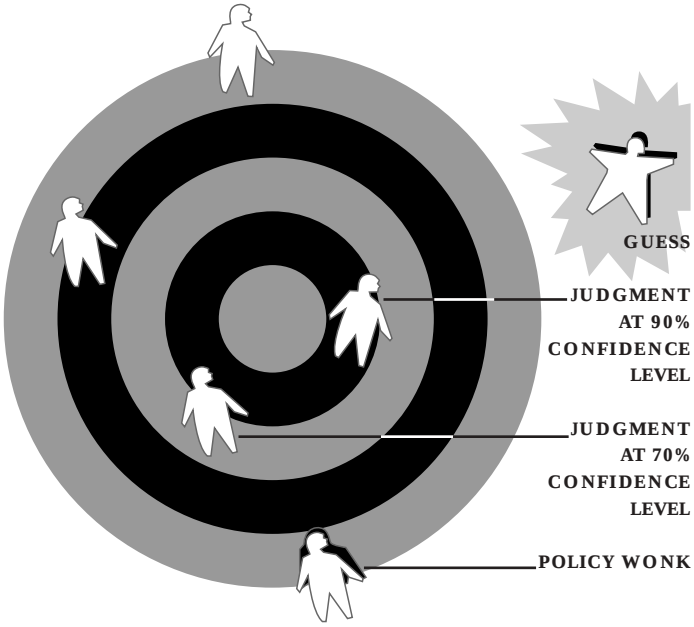
There are distinct advantages to examining influence factors from a market value view point. Specification codes and standards are influence factors in a number of markets. If products A and B both fall into the acceptable spec range, they are seen to be equal. However, a market value analysis can reveal that product A falls closer to the poor end of the range, while product B is at the excellent end. The marketing department which can differentiate its product in precisely the areas their customers will value, is at a distinct advantage in overcoming influence obstacles.

In the influence or marketing arena we have observed behavior patterns that are similar to the behavior we observed in the property and economic arenas. Marketing seems to have more mystique within many companies than any other area. Marketing is generally accepted without critique because Sales & Marketing is the only function that communicates with

the market. It doesn't seem to matter that Marketing rarely designs a structure to enable in-depth communication among experts to take place.

Over the years, we have observed that Marketing frequently doesn't consider their company's experience base to be a source of market value knowledge. According to this paradigm, market value information is only found in the market; consequently, people are not asked to input their judgment. This happens despite the fact that their own company may be contributing 30% or more of the entire chain's market value.

Again, we find a small but significant vocal minority that considers the market to be their private domain. They consider knowledge to be power not to be shared.



JUDGMENTS, GUESSES, & POLICY

JUDGMENT *accuracy is dependent on the quality of structure, intensity of focus, and level of confidence. If we consider the target in the above illustration to be a quality structure, then the bullseye represents 100% confidence that a knowledge block has been proven to be true. The next ring represents 90% confidence and can also be considered factual. 70% confidence means that more work needs to be done, but the knowledge block is so consistent with the team's experience that it can be accepted as true. Knowledge blocks with less than 70% confidence cannot be utilized without further input.*

GUESSES *completely miss the target.*

POLICY *which has been well thought out can offer structure. However, if blindly followed without the input of an individual's focused judgment, it is a distraction and will not contribute to the knowledge base of the individual or the corporation.*

Strategy

The Market Value System uses the MV Equation to enable an expert team to decipher market value so that comprehensive strategies can be developed that have the full commitment of all participants.

A strategy sheet is a series of interrelated spread sheets that link the expert team's property, economic and influence knowledge blocks together. All input data is supported by the results of the expert team's modeling sessions. Market statistics and competitive intelligence are also tied into the strategy sheet.

Section 1 of the strategy sheet contains the optimum MV Equation and MV Total for the company and all of its competitors.

Section 2 of the strategy sheet contains the business' knowledge block data that is linked to Section 1. Section 2 is linked to the business' property, economic and influence knowledge blocks.

Section 3 of the strategy sheet contains the business' property gap analysis for ready reference.

Section 4 of the strategy sheet contains the business' sort of MV Totals for the company and all competitors plus the business' market share, volume and revenue commitments.

Section 5 of the strategy sheet contains the business' market data and highlights of the business' strategic objectives and tactics.

With the aid of the strategy sheet, the expert team has everything it needs to evaluate alternative objectives and tactics. Finally, the objectives and tactics that have the full commitment of the entire expert team are put on a time line and linked to the expert team's income summary knowledge block.

Future cash flow statements are updated automatically by the expert team on a monthly basis in conjunction with activities required to manage the business. In this manner the plan is kept current perpetually.

Monthly pro-forma income summaries are automatically prepared by the expert team without any need for data to come from staff accounting departments, whose primary function is to prepare consolidated reports for existing and prospective owners as well as any regulatory agencies. The expert team also prepares a pro-forma income summary before finalizing any change in the business. Mistakes can be caught before they occur.

The expert team correlates its income summary knowledge block with the company's official account-

ing data every four months or as warranted by events and deviations from financial reports.

The business' property, economic, influence, market, and income summary knowledge blocks plus the strategy sheet are the business' long term plan. Since all of the knowledge blocks and the strategy sheet are built up from the judgment of every professional who has a key role in the success of the business, the mechanism is in place to keep the business' knowledge blocks and plan current.

Remember, information should only be thought of as background material to stimulate new thinking. At any time, anyone who is part of the plan can access the entire plan or a particular knowledge block and transfer it to his PC so that he can modify his own judgment. This is allowed if the expert communicates the rationale and supporting evidence that caused him to modify his judgment to everyone else. Others can then study the new information and rationale and use it to modify their own judgment or not as they see fit. Nobody is allowed to change another person's input regardless of hierarchical authority.

Anyone who is part of the plan can insert himself into any or all of the business' knowledge blocks provided that he qualifies himself to participate. This is facilitated by the glossaries and structure designed for each knowledge block. Everyone is encouraged to participate as much as possible and it soon becomes apparent that those who contribute to a number of knowledge blocks increase their worth to the business and participating means sharing both judgment and supporting evidence.

We believe that the Market Value System and Knowledge-based Renewal and Development can and will change the power structure within corporations. Hopefully, the small but significant minority that believes that knowledge is power not to be shared will see the light and those who have never been previously asked to judge anything will seize the opportunity.

Conclusions

Doing it right from the start requires senior management to insist that all businesses be based on knowledge blocks. This is a radical change to the power structure which exists in many corporations today, where those with hierarchical authority make all the decisions. A knowledge-based philosophy relies on individual judgment, requires involvement at all levels, and taps an infinite source of added value—the experience base of the corporate professional staff.

Doing it right from the start means thinking everything through in such exhaustive detail that relative worth in terms of end-product properties, economic value, and influence can be described in the universal language of knowledge—mathematics. The resulting equations are powerful analytical tools which can change the current acceptable success/failure ratio of commercial development from 10 successes for every 90 failures to 90 successes for every 10 failures.

Doing it right from the start means doing it thoroughly from the start. And that is the fundamental principle underlying every facet of the Market Value System.

About the Authors:

William Roy Kesting • Since founding Kesting Ventures Corp. in 1984, Mr. Kesting has personally completed over 100 major innovation programs for clients around the world. He has won recognition as the inventor of Experiential Modeling technologies and the Market Value System, which deciphers the mechanism by which markets make “buy decisions.” These tools reflect his 40 years of experience in senior management and consulting to the departments of research, general management, innovation, technology assessment and marketing for a variety of industries. Mr. Kesting received the Commercial Development Association’s Golden C Award for excellence in the practice of commercial development in 1995. He has a BS in Chemistry and Mathematics from Manhattan College, an MBA in Finance from Fairleigh Dickinson University and has completed 15 years additional graduate course work in Chemistry and Chemical Engineering.

Kathleen K. Woods • As Vice-President and Principal of Woods Creative Services, Ms. Woods assists organizations in formulating, organizing and graphically representing complex data and complicated business strategies. Her seventeen years of experience in the field of information design enable her to offer unique insight into all areas of strategic thought. Prior to consulting, Ms. Woods served as an art director at Golf Magazine and Games Magazine and holds a Bachelor of Fine Arts degree from the Rhode Island School of Design.