

All About 'Research Patterns'

For the past twenty years, Kesting Ventures has researched methodologies to harness the reasoning ability of people, who are working in the frontier of businesses, technologies and markets. Our goal has been to learn how to create new tangible blocks of knowledge that can be used to solve complex business, technology and market puzzles and forecast future market behavior.

Although we have worked on many hundreds of complex business, technology and market puzzles, we have encountered only eight (8) research patterns, which we believe describe all research.

We can debate whether the actual number of research patterns is six, eight or ten; however, the point to be made is that the number is small. And the number of research patterns that any business needs to know is even smaller.

Research Patterns describe the form of arguments for different research programs. Last month we pointed out that all business, technology and market puzzles ought to involve rational arguments to prove or falsify propositions. Research patterns help people

formulate their rational arguments. It should be pointed out that every professional from the Chairman of the Board to an entry level position must formulate rational arguments that prove that their objectives are logical.

The fact that there are only eight research patterns means that there are at most only eight argument forms that describe all research. Businesses, technologies and markets may differ but research programs can be categorized into a much smaller number of argument forms. This important finding is consistent with the science of logic.

Another important finding that we have made is that most companies use only one or two research patterns for all of their research programs.

Research patterns are like plots of plays. The actors, time period, set designs, costumes, dialog, music, etc. of many hundreds of plays may differ but the plays can be categorized into a much smaller number of plots.

Research patterns and argument forms are important because compound syllogisms (argument forms) that are developed for one business readily apply to other existing and new businesses. And knowledge block structures that have been designed for one business can readily be modified for other existing and new businesses. ■

Research Pattern A

RESEARCH PATTERN A describes programs to enter or increase share of an existing market with new products that have cost and/or performance advantages.

For more than twenty five years, a plastics division of a major chemical company ('Ajax Inc.') supplied resins to various specialized plastic markets. Historically, the division held strong No. 2 positions in each of its markets.

Senior management targeted this division for growth and the division decided to initiate a research program to develop new resins that could enable the division to capture the lead in one or more of its strategic markets. Emphasis was placed on added value. The division did not consider research patterns or the form of its argument before initiating its research program.

A call for ideas resulted in a technical direction and two new resins were developed. The

division believed that the probability of success of its research effort was high despite the fact that its historical strength was to be a strong No. 2 player.

Many companies have research projects that fit this research pattern. Their product might not have been a resin. It could have been an agricultural chemical, an electronic device, an improved fiber, a pharmaceutical, a construction material or some other type of product or service. However, the research pattern of their program was the same as for this division. Their goal was to increase share of an existing market based on improved cost and/or performance advantages.

All business puzzles ought to involve rational arguments to prove or falsify propositions. Aristotle recommends that we begin preparing our debates with the form of our arguments. Therefore, let's discuss the form of the arguments for this division and all Research Pattern A programs.

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The Eight Types of Research Patterns

Pattern A: Programs to enter or increase share of an existing market with new products that have cost and/or performance advantages.

Pattern B: Programs to create a completely new-to-the-company market or to revolutionize an existing market so that it becomes a new market.

Pattern C: Programs to increase profitability or market share based on cost reduction and/or pricing. Manufacturing cost competitive intelligence programs are included in this pattern.

Pattern D: Programs to develop a new material to replace an existing material, which is in short supply and/or increasing in cost. This pattern includes programs to satisfy needs created by legislation or some other external force.

Pattern E: Exploratory programs to develop fundamental knowledge. Knowledge management programs to create knowledge blocks are included in this pattern.

Pattern F: Short term programs for direct manufacturing support. Managerial accounting and/or engineering programs to enable plants to understand and optimize manufacturing costs are included in this pattern.

Pattern G: Programs based on a unique forecast of an emerging market and/or technology. Programs to create new-to-the-world markets are included in this pattern.

Pattern H: Programs based on developing a new material that has not been commercialized because an economic manufacturing process has never been developed. This pattern is a variant of Pattern B. ■

Research Pattern A (con't from front)

Research Pattern A Form of Argument

Conditional Proposition: There is a direct correlation between market value and market share in all markets. This is a known truth.

Conditional Proposition: If a product achieves the highest market value in a market, then the product has the opportunity to achieve the number one market share at market equilibrium. This is a known truth.

Categorical Proposition: Plastic products that are made from 'Super-Resin' have the highest market value in markets X, Y and Z. This can be proven by means of a market model and knowledge blocks.

Categorical Proposition: 'Ajax Inc.' is the company that developed 'Super-Resin' and is now supplying it to markets X, Y and Z.

Logical Conclusion: Therefore, there is high probability that 'Ajax Inc.' will achieve the number one market share of resins for markets X, Y and Z at market equilibrium.

Research pattern or form of argument does not demonstrate the truth of a conclusion, but merely shows that something follows under a condition or qualification laid down in what stands as the major premise. In practice, both the conditional and categorical propositions must be significant and supported by sufficient evidence to establish their truth for an important conclusion to be reached.

The first step is to outline the form of your

argument based on what you would like to know even if you don't know it. This is usually done before you have all of the knowledge you need to prove your propositions.

We have evidence, which proves that the conditional propositions we have shown for Research Pattern A are true. However, even if we didn't know about the correlation between market value and market share, we would still have envisioned similar conditional propositions. For example, it is common sense that companies that invest in research to improve products ought to know that the products need to be improved.

Based on these thoughts, an alternative form of argument for Research Pattern A follows:

Conditional Proposition: Plastic products in markets X, Y and Z require improvement. This proposition ought to be proven before investing in a research program.

Categorical Proposition: Plastic products that are made from 'Super-Resin' will be valued in markets X, Y and Z. This proposition ought to be proven before investing in a research program.

Categorical Proposition: 'Ajax Inc.' is the company that developed 'Super-Resin' and is now supplying it to markets X, Y and Z.

Logical Conclusion: Therefore, there is high probability that 'Ajax Inc.' will achieve the number one market share of resins for markets X, Y and Z at market equilibrium. This conclusion does not necessarily follow. A conditional proposition that correlates resin improve-

ments with market share is required.

This additional conditional proposition follows:

Conditional Proposition: In markets X, Y and Z resin performance correlates with market share. This is another proposition that ought to be proven before investing in a research program.

Research Pattern A Guidelines

1. Research Pattern A is only recommended if there are few competitors and the company has business, technology and marketing skills that are equal to or superior to the current market leaders.

2. An audit should be conducted to determine whether a breakthrough is possible (See Research Pattern B below).

3. Market share by rank order applies. A paper concerning the rank order principle is available for downloading on our website www.kestingventures.com.

4. Research Pattern A has a high probability of technical success, which will tend to prolong and increase the research investment. Therefore, it is important to succeed in the first year after a new product is introduced.

5. Customer trials should only be sought after the decision has been made to introduce the product. The product should be directed at market needs but that doesn't mean the market creates the product.

6. There is a high probability of customer interest for Research Pattern A. This means that customers will agree to trials, which will tend to prolong the research investment. ■

breakthroughs

in knowledge management

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About Kesting Ventures

Since 1984, the mission of Kesting Ventures Corp. has been to develop, improve, record and facilitate the problem-solving methodology required by R&D, marketing and commercial development specialists.

The powerful problem-solving methodology of Experiential Modeling embodied in KVC's Extend® and Start® Programs enable your organization to form specific operational plans for entire businesses, envision and then invent new products and technologies – even renew the growth of existing businesses.

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Research Pattern B

RESEARCH PATTERN B describes programs to create a completely new-to-the-company market or to revolutionize an existing market so that it becomes a new market.

Research Pattern B is much like Research Pattern A. The difference is in the magnitude of the market value improvement.

Research Pattern B Form of Argument

Conditional Proposition: There is a direct correlation between market value and market share in all markets. This is a known truth.

Conditional Proposition: When a product is developed that improves a market's market value by 14 points; then, the company that introduces the new product has the opportunity to capture the entire market. This is a known truth.

Categorical Proposition: Plastic products that are made from 'Super-Resin' improve the market value of markets X, Y and Z by 14 or more points. This can be proven by means of a market model and knowledge blocks.

Categorical Proposition: When plastic products for markets X, Y and Z are made from 'Super-Resin', the remaining market value gap will be much lower than 14 points. This can be proven by means of a market model and

knowledge blocks.

Categorical Proposition: 'Ajax Inc.' is the company that developed 'Super-Resin' and is now supplying it to markets X, Y and Z.

Logical Conclusion: Therefore, there is high probability that 'Ajax Inc.' can change resins for markets X, Y and Z to 1-Player markets at market equilibrium.

Research Pattern B Guidelines

1. Research Pattern B should always be considered because breakthroughs trump incremental improvement strategies.

2. Successful breakthrough programs invariably result in high market share. Business blueprints should include appropriate investments to capture the entire market. Huge opportunities may require partners, which are best sought early in the program.

3. Market share by rank order applies. A paper concerning the rank order principle is available for downloading on our website www.kestingventures.com.

4. Breakthrough programs should be managed for period (usually annual) profitability.

5. Avoid the tendency to drift toward existing market replacements for near term sales. This usually results in failure caused by the change of mission. ■