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UTILIZATION OF TRIZ FOR DEVELOPMENT OF
BUSINESS STRATEGIES FOR INNOVATIVE
COMPANIES

Dissertation to TRIZ Master's certification

Scientific Consultant: TRIZ Master N. Feygenson

Farmington, Michigan, USA – Hwaseong, South Korea
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Table of Contents

Introduction. General Description of Research	1
Actuality of Researched Topic.....	1
Goal and Objectives of Research	2
Methods of Research	2
Scientific Novelty of Research	3
Practical Significance of Research.....	4
Defense of the Thesis: Main Issues.....	5
Author’s Personal Contribution	5
Experimental Research	5
Publications.....	6
Structure and Scope of Dissertation.....	6
Content of Dissertation	6
Summary.....	8
Publications on Dissertation Topic	9
Chapter 1. Brief Overview of TRIZ and Business Tools Aimed at Resolution of Business Contradictions Typical to Innovative Start-Ups.....	11
Business Tools Aimed at Resolution of Aggravated Business Problems Typical to Innovative Start-Ups.....	11
Innovative Tools and Approaches Aimed at Resolution of Business Problems	13
TRIZ Tools Aimed at Resolution of Aggravated Contradictions	15
Summary of Chapter 1	17
Chapter 2. Development of TRIZ-Based Tools for Addressing the Aggravated Business Contradictions and Systematically Searching for New Markets.....	18
Key Contradiction Created by Success.....	19
The Most Dangerous Stage in Evolution of Innovative Business.....	19
Aggravated Business Contradictions	22
Development of TRIZ-Based Tools for Addressing the Aggravated Business Contradictions	25
Need in Systematic Search for New Markets and Market Niches	33
Development of TRIZ-Based Tools for Systematic Search for New Markets.....	33
Summary of Chapter 2	38
Chapter 3. Development of Winning Strategies for Inherently Weak Innovative Businesses.....	39
Important Stage in Business Evolution.....	40
Basic Principles for Development of Winning Business Strategies.....	42
Counterintuitive: Is it Good or Bad?.....	45
Catch Me If You Can.....	48
Fat Product – Lean Process.....	51
Icebreaker	53
Emulation.....	56
Think Big, Target Small	60
Win the War, Not the Battle	62
Bowling Alley.....	64

Go Where the Puck Will Be.....	67
Evangelism Marketing.....	70
Avoid Hard Blows.....	75
Strategize Your IP.....	78
The Bear Hug.....	81
Bad News: Why These Strategies Are Usually Rejected.....	84
Summary of Chapter 3: System of Efficient Winning Strategies.....	87
Summary.....	88
Summary.....	88
Referenced Literature.....	90

List of Figures

Fig. 1. Simple Graphical Model of Dilemma.....	26
Fig. 2. Graphical Model of Conflict.....	27
Fig. 3. Graphical Model of Separation Principles.....	27
Fig. 4. Assumptions behind the Dilemma.....	29
Fig. 5. Comprehensive Model of Dilemma.....	30
Fig. 6. Inversion of Generalizations.....	31
Fig. 7. Conflict.....	32
Fig. 8. Comprehensive Model of Situation.....	36
Fig. 9. “Physical” Model of Event.....	36

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Table of Contents

Actuality of Researched Topic	1
Goal and Objectives of Research.....	2
Methods of Research	2
Scientific Novelty of Research	3
Practical Significance of Research	4
Defense of the Thesis: Main Issues	4
Author's Personal Contribution	5
Experimental Research	5
Publications	5
Structure and Scope of Dissertation.....	6
Content of Dissertation	6
Publications on Dissertation Topic	8

Introduction. General Description of Research

Actuality of Researched Topic

Contemporary crisis is a transition from industrial to postindustrial, informational epoch of global economy. Currently, people invest in development of industrial capacities. In future, money, resources and efforts will be invested in long-term innovations. New products and services will be developed ahead of time. As a result, they will hit the market just in time, when consumers start feeling a need in new, better capabilities and begin searching for appropriate products. These changes in investing and product development look at least risky from standpoint of “widely accepted” approaches and principles. However, new paradigm is always counterintuitive from point of view of current, habitual paradigm. The companies, industries and countries that already follow the new principles can take the opportunity to be first in postindustrial world. Their competitive advantage is an ability to forecast improvements of their products for several generations ahead and implement these forecasts.

It is clear that competitive resistance is the toughest obstacle to implementation of innovative products and services. Companies already entrenched in industries and markets, with their obsolete products and services, are the most aggressive competitors to innovative businesses. They are fiercely fighting to preserve their position in the marketplace, to keep their customers.

The fiercer the competition is, the more obvious it becomes that innovation cannot succeed if company follows the reactive strategy, deals with internal and external obstacles after they become evident. Such strategy “reliably” leads to the failure. Multiple researches conducted by Clayton Christensen, Geoffrey Moore, Anthony Ulwick and other scientists and consultants demonstrated that proactive strategy that prepares company to dealing with obstacles ahead of time or even prevents occurrence of some obstacles is the key factor of success. Consequently, revealing of typical obstacles that prevent delivery of innovation to the customers, and development of strategic approaches to foreseeing, overcoming and preventing these obstacles becomes the most important direction of research and development in science of innovation.

Clayton Christensen, Geoffrey Moore and other well-known authors describe in their books and articles various aspects of competitive warfare and suggest efficient proactive strategies for successful implementation of innovative products and services. However, all these authors carefully avoid one of the most dangerous stages in the process of introducing an innovation to the market: the first substantial commercial success.

Author’s research showed that such “avoidance” is not an accident. The innovative company in this competitive warfare faces a conglomeration of aggravated, interlaced contradictions. The scientists who aren’t familiar with TRIZ and cannot address the contradictions such a situation is methodologically hopeless. On the other hand, they don’t risk scaring entrepreneurs away from implementation of innovations by describing such phenomenon without any recommendations on overcoming the obstacles.

However, entrepreneurs cannot avoid the troubles simply because they don't know about these obstacles. Moreover, the entrepreneurs are unprepared to face these obstacles, thus adding to the statistics of failures of innovative companies. The innovations, though, reach the consumers anyway, although they are produced by competitors rather than by original innovators.

Hence, importance and urgency of this issue is determined, on the one hand, by frequent failures of innovative companies after first substantial commercial success, and on the other hand, by lack of methodological tools providing development and implementation of successful business strategies capable of overcoming the competition at this stage, maximum involvement of intellectual resources of innovation company, and sustainable introduction of efficient innovations to the market.

The dissertation project has been conducted in traditions of Kishinev TRIZ School. These traditions include aiming the research to the practical purposes, broad and deep use of TRIZ tools, and delivery of methodological and practical recommendations in compact, usable format.

Although the recommendations produced in the course of this project target the small companies with limited resources, they also can be successfully employed by innovative companies of any size. These recommendations are also useful to business incubators, because innovative companies should prepare themselves to the consequences of first commercial success from the very beginning of their activities.

Goal and Objectives of Research

The goal of this research is to improve efficiency of methodological tools necessary to form the strategies increasing competitiveness of innovative companies at the stage of development of their first marketing success. This goal is achieved through development of TRIZ-based tools for diversification of innovation and for resolving the non-technological contradictions, and formation of the system of interrelated efficient strategies. The following objectives should be accomplished to achieve this goal:

- Reveal the typical interrelated contradictions the innovation companies face at this stage of business evolution;
- Develop the methodical tools for analysis and addressing of this system of interrelated contradictions, and for diversification of innovations;
- Develop the practical recommendations on implementation and utilization of strategies;
- Reveal and explain the reasons why such strategies are rejected or incompletely implemented by companies;
- Develop the practical recommendations on overcoming the obstacles that hinder implementation of suggested strategies.

Methods of Research

Major research methods used in this project are traditional in TRIZ research, especially in discovery and development of Patterns of Evolution. Research in history of subject is used to accumulate the factual knowledge on frequently occurring similar phenomena in typical process of system evolution, as well on cases when such phenomena don't occur in evolutionary process. In this particular case, we are talking about frequently repeating failures at the specific stage of evolution of innovative business (system), as well as about

cases when innovative business successfully passes this stage of evolution. Then, the repeating phenomena, as well as cases of their absence, are analyzed and compared in order to reveal the differences. This comparison results in step-by-step development of “portrait” of recommendation; then, this sketchy recommendation is tested in other cases, updated and corrected. The next step is testing of recommendations in new business situations.

Author used also the deductive logical method. Hypothesis on contradictions that cause business failures are suggested based on discovered differences between “desirable” course of events, i.e. more and more consumers purchase innovative products and services, and reality, i.e. competitors take any legal measures to protect and grow their customer base. These contradictions are analyzed to reveal the psychological stereotypes (assumptions) that lead to occurrence and aggravation of contradictions. Then, these assumptions are compared to the typical beliefs shared by majority of entrepreneurs. Inversion of these assumptions provides for new opportunities to resolve the problems caused by competition. Comparison of these solutions with actual cases of business successes at this stage provides for concluding on role of this assumption and contradiction, as well as on importance of successful resolution of this contradiction.

Experience of real innovative businesses serves as an empirical basis of this research. Information about real experiences of entrepreneurs is collected from both literature and networking with local entrepreneurs. Author also analyzed his personal experience of implementing the suggested strategies at early stages of several innovative start-ups.

Scientific Novelty of Research

1. Author discovered important, but not researched before, stage of evolution of innovative business.
 - a. Risk to the innovative company’s existence in the market at this stage is elevated.
 - b. The stage begins right after the first substantial commercial success of innovative product, and ends either when company disappears from market or when the market boom begins and nature of competition changes.
 - c. As a result of first substantial commercial success, the company stands out of the homogeneous crowd of “novices” and threatens the competitors; hence, the company experiences maximum competitive pressure. On the other hand, if company responds to the competitive blows in the conventional ways, its scarce resources quickly run low, and company crashes.
2. Author found out that this stage can be passed successfully, and developed appropriate strategies. These strategies provide innovative company with understanding how to efficiently utilize scarce resources, expand the business, avoid competitive blows and deceive competitors on its intentions, plans and responses to competitive attacks.
 - a. Strategies are developed via standard innovative procedure, i.e. reveal, analyze and resolve the contradictions the innovative company faces at this stage.
 - b. Typical contradictions arising in course of competitive fight during this stage, and patterns of their occurrence are revealed and researched. The mechanism of occurrence of contradictions is as follows: entrepreneurs follow the assumptions and beliefs shared by majority of businesspeople; if entrepreneur takes these contradictions as “unsolvable,” the company’s crash is inevitable.
 - c. Strategies are integrated into the strategic system. This system suggests the following approaches: prepare ahead of time; quickly, at minimum cost shift to

- new generations of product and new markets; act covertly, and exploit the customers' support and know-how designed into the innovative process.
3. Author provided the methodological support to implementation of suggested strategic system. For this purpose, he developed efficient, easy-to-use method for revealing the new markets and generations of innovative product.
 - a. The method consists of fast generation of practically exhaustive set of alternative realizations of innovative idea and subsequent selection of appropriate product concepts based on specific criteria.
 - b. Generation of alternatives is aimed at development of product platform consisting of all feasible realizations. Generation of alternatives involves double morphological synthesis along the predetermined axes, thus multiplying the basic idea of innovative product.
 - c. Alternatives for implementation are selected by the following criteria: the subsequent generations of product satisfy the needs of customers better; new categories of customers pay attention to the "word of mouth" of existing customers. These criteria provide for uninterrupted process of shifting to new generations of products and new markets.
 4. Author tested the strategies in real consulting project. He found out that development and implementation of these strategies calls for making the unobvious decisions in contradictive situations. For this purpose, the author developed and tested the new approach to addressing the contradictions that arise in non-technological areas of human activities. This approach suggests revealing the wrong beliefs and assumptions, analyzing them, and purposefully modifying the understanding of new situation rather than modifying the conflicting elements.

Practical Significance of Research

The results of this research are aimed at practical use in development of business plans and business strategies of implementation of breakthrough innovations and especially disruptive innovations. Efficiency of these strategies is demonstrated by both analysis of history of innovative businesses and experience from use of suggested strategies in business plans of innovative start-ups. It is important to notice that this experience is not limited by personal author's experience: the strategies suggested in this research had succeeded with many companies.

Suggested in this dissertation tools supporting the innovative activities had been used in multiple consulting projects.

Method of "idea multiplication" had been used for many times as a systematic approach to the issue of diversification of innovations. It usually took only few hours of consultant-methodologist's work with client to significantly expand entrepreneur's vision of marketing potential, efficient realizations and technological capabilities of their innovations. This easy-to-use method substantially accelerates analysis of marketing potential of any product, including the innovative ones, and increases this marketing potential, usually in order of magnitude.

Suggested approach to resolution of aggravated contradictions had been used in solving the wide variety of problems, both technological and non-technological.

The very nature of these problems made widely accepted TRIZ approach to resolving of physical contradictions unusable, because it was difficult to find a relevant analogy to notions of “space,” “time,” “condition” or “systemic level” in such situations. In many cases, separation of some “non-technological” entities was not an applicable option. On the other hand, due to suggested by new approach changing the understanding of and attitude to the situation at hand before trying to modify the involved entities provided the problem-solver with faster and more efficient solutions with minimum intellectual effort.

Author also used these results while developing the business plans for two innovative companies, Virtual Products LLC (Ann Arbor, MI, USA) and SkinTreet LLC (Ann Arbor, MI, USA). In 2008-2009, these business plans for several times were the finalists of business plan competitions conducted by GLEQ (Great Lakes Entrepreneur's Quest), division of Automation Alley, association of engineering businesses in Oakland, Macomb and Washtenaw Counties, MI, USA.

Defense of the Thesis: Main Issues

1. Discovery of specific stage in lifecycle of innovative companies
2. Results of revealed typical contradictions that render the innovative companies incapable of counteracting to the competitive attacks
3. Systematic approach to diversification of innovations, search for new generations of product and new markets
4. New approach to addressing the aggravated contradictions aimed at modification of problem-solver's perception of situation-at-hand rather than on modification of entities involved in this situation

Author's Personal Contribution

Experimental testing of new strategies in business plans of innovative start-up companies was conducted by author together with Valeriy Prushinskiy and Geoffrey Henny. All other findings described in this dissertation, including revealing and description of indications of inevitable dangerous stage in evolution of innovative businesses, discovery of typical to this stage system of aggravated contradictions, development of method for resolving the aggravated interrelated contradictions, development of strategies and determination of main obstacles to their implementation by innovative businesses, are the author's personal contribution.

Experimental Research

Author successfully used the major results of this research in consulting projects while working with innovative companies of different sizes. In parts, these results were presented at multiple conferences: TRIZCON2000 (The Altshuller Institute for TRIZ Studies, Inc., 2000), NCPCR 2001 (George Mason University, 2001), Future Trend Conference (Miami, FL, 2006), Global TRIZ Conference 2010 in Korea (Seoul, Republic of Korea, 2010), 16th Conference on Industrial Engineering and Management (Tel-Aviv, Israel, 2010); they were also used in preparation of presentation at Japan TRIZ Symposium (Tokyo, Japan, 2010).

Publications

Major portions of dissertation are described in six publications listed in the end of this Introduction.

Structure and Scope of Dissertation

Dissertation consists of Introduction, three Chapters and Summary, described in 91 pages of main text, contains 19 Appendixes in 76 pages, 14 figures and 10 tables, and list of literature including 73 sources.

Content of Dissertation

Introduction describes the problem statement, substantiates the actuality of the topic of this dissertation project, formulates the goals and objectives of research, lists the main ideas of defended thesis, explains the scientific novelty and practical value of results of this research.

First chapter contains the overview of literature and substantiates the goal and objectives of research. The publications used in this research could be categorized as follows:

1. TRIZ: researches on revealing, formulation and resolving of contradictions (G. Altshuller, G. Ivanov, V. Petrov et al.);
2. TRIZ + business: TRIZ research on evolution of organizations (B. Zlotin), on revealing and addressing the contradictions that occur in business;
3. Business: different stages in evolution of innovative businesses (G. Moore et al.), problems in implementation of innovations (G. Moore, C. Christensen, A. Ulwick et al.).

Second chapter of dissertation describes the system of interrelated aggravated contradictions, development of tools for addressing these contradictions and systematic search for new markets and market niches for innovation.

This chapter for the first time describes in detail an important stage in evolution of any innovative business: inevitable competitive attacks taken by stronger companies that immediately follow the first substantial commercial success of innovation. Author shows that competitive blows are directly caused by commercial success, but strength of competitive blows is disproportional to the size of this success. Author also reveals the mechanisms of occurrence and aggravation of contradictions that hinder the innovative businesses' ability to successfully counteract to the competitive attacks that aim at extermination of innovative business. These contradictions are brought to life by widely accepted among the entrepreneurs' beliefs and assumptions related to the "unwritten rules" of "fair competition." These unwritten rules inevitably create the conditions under which the stronger competitor always wins and weaker competitor always loses. But any business introducing the breakthrough innovation to the market is initially in the weak position regardless to the size of company – and must win in competition. This is the root cause of contradictions typical for this stage of evolution of innovative business.

According to the nature of contradictions under consideration, the author developed the new method of analyzing and addressing the aggravated contradictions; this method is based on revealing and inverting the assumptions that cause occurrence and aggravation of these contradictions.

Author also revealed and systematized the relationships between typical contradictions that characterize this stage of business evolution. Since simultaneous analysis and addressing of these interrelated contradictions is impossible, author uses conditional separation of these relationships. Later, this approach provides for opportunity to resolve each contradiction individually, and then, by reestablishing of separated relationships, combine the solutions (strategies into the integral strategic approach.

One of the most important strategies is conquering of new markets. However, there is no systematic approach to the issue of diversification of innovation. To fill this gap, author used patterns of evolution of innovations to develop the method of systematic search for new markets and market niches for company's innovations. This method has been successfully tested in multiple real-world projects. This method combines functional analysis of innovation and method of revealing all possible alternative realizations of function. Separate components of this method were suggested before by G. Yezerky, G. Frenklah and V. Prushinskiy; however, only integration of these components produced the usable and efficient method.

Third chapter describes the results of applying the new tools for resolution of system of contradictions; these results are presented in the form of system of business strategies aimed at competitive victory.

First of all, author formulated the strategic goal: business should survive and continue developing and growing despite the competitive blows. All actions that aren't targeted to achievement of this strategic goal are inexcusable waste of limited resources, efforts and time.

The unique method of resolving the aggravated contradictions that inverts the assumptions and beliefs provided for discovery of conditions under which any competitive blow doesn't cause any harm to the company, or causes the minimum harm.

Clear understanding of these conditions provided for development of 12 business strategies targeting at achievement of the strategic goal. These strategies should be implemented immediately as soon as an innovation is created. Only preparation ahead of time provides the company with opportunity to avoid any competitive blow with minimum efforts and losses, and continue developing the business. Author step-by-step demonstrates how consistent, persistent and timely implementation of these strategies provides for sustainable movement toward the strategic goal.

Discovery and systematization of relationships between contradictions allows integrating the strategies into the unified strategic approach.

The method of systematic search for new markets and market niches for innovation produces clear recommendations on introduction of innovation to the market and steady expansion of customer base.

Since widely accepted assumptions and beliefs are pretty firm in any community, including the community of entrepreneurs and managers, they would inevitably produce objections and obstacles to implementation of suggested strategies. These internal obstacles are as dangerous to the company as external competitive blows are. Taking this into account,

author has developed methodological recommendations on timely revealing and overcoming these typical objections and obstacles.

Use of suggested strategies and recommendations increases chances to innovative company survival and provides for successful introduction of innovation to multiple markets and market niches.

The updated tools for analysis of complicated situations and synthesis of solutions used in this dissertation have been successfully tested in real-world innovative projects. Their applicability goes far beyond the scope of the topic of this dissertation; these tools can be used in various areas where TRIZ is applicable. Their use proven in multiple projects can substantially increase level of ideality of intellectual (creative) efforts of project team members and consultants. This effect is achieved through the following features of updated tools:

- Updated method of resolving the contradictions focuses attention on fundamental psychological root causes of occurrence and aggravation of contradictions: beliefs and assumptions that became wrong under new conditions;
- Suggested method of revealing the alternative realizations of innovative idea provides for “quick and easy” development of multiple variations of one idea, i.e. generate many ideas from one without substantial intellectual efforts.

Summary

1. Author discovered important, but not researched before, stage of evolution of innovative business. Risk to the innovative company’s existence in the market at this stage is elevated. The stage begins right after the first substantial commercial success of innovative product, and ends either when company disappears from market or when the market boom begins and nature of competition changes. As a result of first substantial commercial success, the company stands out of the homogeneous crowd of “novices” and threatens the competitors; hence, the company experiences maximum competitive pressure. On the other hand, if company responds to the competitive blows in the conventional ways, its scarce resources quickly run low, and company crashes.
2. Author developed strategies aimed at successful passing of this stage. With these strategies innovative company efficiently utilizes scarce resources, expands its business, avoids competitive blows and deceives competitors on its intentions, plans and responses to competitive attacks.
 - a. Since the company’s situation at this stage is similar to the situation when the contradiction arises in technology, author developed the strategies via standard innovative procedure, i.e. revealed, analyzed and resolved the contradictions.
 - b. Author revealed the typical contradictions arising in course of competitive fight during this stage, and patterns of their occurrence. In research of these patterns, author found out that contradictions occur when entrepreneurs follow the assumptions and beliefs shared by majority of businesspeople. When entrepreneur takes these contradictions as “unsolvable,” the company’s crash is inevitable.
 - c. Author integrated the strategies into the strategic system. This system suggests the following approaches: prepare ahead of time; quickly, at minimum cost shift to new generations of product and new markets; act covertly, and exploit the customers’ support and know-how designed into the innovative process.
3. Author provided the methodological support to implementation of suggested strategic system. Although the systematic approach to diversification of innovations is essential to

success of innovative business, there is no known method specifically targeting this need. To meet this expectation, author developed efficient, easy-to-use method for revealing the new markets and generations of innovative product.

- a. The method consists of fast generation of practically exhaustive set of alternative realizations of innovative idea and subsequent selection of appropriate product concepts based on specific criteria.
 - b. Generation of alternatives is aimed at development of product platform consisting of all feasible realizations. Generation of alternatives involves double morphological synthesis along the predetermined axes, thus multiplying the basic idea of innovative product.
 - c. Alternatives for implementation are selected by the following criteria: the subsequent generations of product satisfy the needs of customers better; new categories of customers pay attention to the “word of mouth” of existing customers. These criteria provide for uninterrupted process of shifting to new generations of products and new markets.
4. Author tested the strategies in real consulting project. He found out that development and implementation of these strategies calls for making the unobvious decisions in contradictive situations. For this purpose, the author developed and tested the new approach to addressing the contradictions that arise in non-technological areas of human activities. This approach suggests revealing the wrong beliefs and assumptions, analyzing them, and purposefully modifying the understanding of new situation rather than modifying the conflicting elements.

Publications on Dissertation Topic

1. System Approach to Win-Win Resolution of Conflicts. TRIZCON2000, The Altshuller Institute for TRIZ Studies, Inc., 2000
2. System Approach to Win-Win Resolution of Conflicts. Tutorial, NCPCR 2001, George Mason University, 2001
3. FutureMapping Experiential Workshop: Emerging Trends in 21st Century Transportation, Future Trend Conference, Miami, FL, 2006
4. Kaplan L. The Mind of the OutCompete Strategist: Dozen Business Strategies to Win Against All Odds, OutCompete Innovation Series, vol. I. ISBN 978-0-557-04498-6, Lulu, 2009, 207 pages.
5. Kaplan L. Strategic Innovation: How to Address Unsolvable Challenges, OutCompete Innovation Series, vol. II. ISBN 978-0-557-04544-0, Lulu, 2009, 435 pages.
6. Kaplan L. Strategic Innovation: Train Yourself to OutCompete with Confidence. OutCompete Ensign. OutCompete Innovation Series, Vol. III, ISBN 978-0-557-07217-0, Lulu, 2009, 423 pages.
7. Kaplan L. Contemporary Crisis: Attempt of Strategic Approach. // Strategic Management - 2009 - № 4(08). In Russian.
8. Resource analysis reveals new applications for innovative technologies, with Naum Feigenson, Global TRIZ conference 2010 in Korea, March 11-12, 2010, Conference proceedings, p.56.
9. TRIZ-IL – Theory & Practice. Development of inventive, systemic thinking for technological problem solving, with Alex Chernobelsky, 16-th Industrial Engineering & Management Conference, March 23-24, 2010, Tel-Aviv, Israel

10. SeHo Cheong, Len Kaplan, Valeriy Prushinskiy, TRIZ at SMD: Unique Situation, Unique Goals, Unique Approaches, Japan TRIZ Symposium 2010 (in process), Tokyo, Japan, 2010

Chapter 1. Brief Overview of TRIZ and Business Tools Aimed at Resolution of Business Contradictions Typical to Innovative Start-Ups

This chapter contains the overview of literature and substantiates the goal and objectives of research. The publications used in this research could be categorized as follows:

- 1. Business: different stages in evolution of innovative businesses, problems in implementation of innovations*
- 2. TRIZ + business: TRIZ research on revealing and addressing the contradictions that occur in business*
- 3. TRIZ: researches on revealing, formulation and resolving of contradictions.*

The literature analysis shows that development of systematic strategic approaches to the business situations is very important for survival and success of innovative enterprises. Development of appropriate TRIZ tools capable of addressing the problem situations more complicated than technological ones is also necessary.

Business Tools Aimed at Resolution of Aggravated Business Problems Typical to Innovative Start-Ups

Authors writing about entrepreneurship and innovation mostly focus on motivation of newcomers to start the business and to be creative. The main hope here is, probably, that at least few businesses succeed, and some creative products and services grow up into real innovations. The following quote¹ is typical to such literature: "...the wealth of this nation, and of every nation rests on the shoulders of entrepreneurial activity. The innovators who open new markets, create new products, deliver new services and change the processes of business itself; by the very act of creation, destroy less efficient industries, create greater productivity and as a direct result create all new wealth."

Multiple books written by practicing entrepreneurs and consultants dethrone, from business point of view, the myths about startups. For instance, Rob Adams² who worked for multiple years in one of Texas incubators explains that "all of a sudden, a lot of startups are looking like armadillos on a country road in Texas. Spawned by the feeding frenzy of the late 1990s, many of these companies went public well before they should have. Even the ones that never IPO'ed hired hundreds of employees, sat them in ergonomically correct desk chairs, and spent money like screaming banshees before they hit the wall with no skid marks... Who founded all these companies, anyway? A bunch of bozos? No. Mostly they were intelligent, technically astute people who intended to build great businesses and make everybody rich. Problem was, they used a process that was fundamentally broken. They didn't start by defining their market and determining how best to serve that market. Instead, they got their hands on all-too-readily-available wads of capital, built their products, then tried to figure out how to reach the market. They used what I call the 'ready, fire, aim' approach to business. They blew through huge stockpiles of money – unbelievably quickly – without stopping to think how their resources could be used to build value. Profitability never crossed their minds. The result? Their companies (not to mention shareholders) have been taking it right

between the eyes.” Such sobering viewpoint is important to innovative entrepreneurs, but even this is not enough.

Unfortunately, very few authors write about dangers waiting for those who risked starting the new business. Especially if this business is implementing the breakthrough innovations. For instance, Geoffrey Moore writes about “chasm”³ and “tornado”⁴; Clayton Christensen discusses the specifics of “disruptive innovations”⁵ and their profitable implementation.⁶ However, even these authors discuss “how to achieve the well-earned success,” but avoid discussing “what to do if you have achieved this success.” The other authors mostly write about “steadfast march to the victory” as soon as the market is saturated with innovative product, or as soon as chasm is crossed.

Only New Lanchester Strategy⁷ explains how the strong competitor has to react to the growth and strengthening of the relatively weak competitors: “The main strategy of the weak is differentiation. Differentiation is a matter of raising the level of weapon performance and the skills of those who wield those weapons. When a weaker rival begins differentiating, a strong company needs only to match the rival’s level of weapon performance and users’ skill. Doing so negates the differentiation strategy used by the weak... When a weak manufacturer starts differentiating its products, the strong must put similar products on the market immediately. However, when time does not allow that, even a copycat will do, as long as customers are not aware of any difference.” But even this author says nothing on how the weak company, especially startup with scarce resources, can resolve this problem.

This strategic explanation states the problem that inevitably lies in wait for any startup business that managed to achieve its first commercial success. Unfortunately, no solution is suggested. Offensive “Strategies for the Weak”⁸ provide weak company with ability to break into the market and divert customers from large, strong competitors. But these strategies are efficiently counteracted by this “matching” strategy, and then roles are switched. Now the weak conqueror becomes a victim; strong companies in this simple way efficiently protect their customer base from erosion. It seems like the weak intruder has no chances to win, even to survive. Then, how the innovative startup can survive and win?

Military wisdom suggests: if in trouble, start thinking and acting strategically. Kenichi Ohmae⁹ writes, “My message... is that successful business strategies result not from rigorous analysis, but from a particular state of mind. In what I call the mind of the strategist, insight and a consequent drive for achievement, often amounting to a sense of mission, fuel a thought process which is basically creative and intuitive rather than rational. Strategists do not reject analysis. Indeed they can hardly do without it. But they use it only to stimulate the creative process, to test the ideas that emerge, to work out their strategic implications, or to ensure successful execution of high-potential “wild” ideas that might otherwise never be implemented properly. Great strategies, like great works of art or great scientific discoveries, call for technical mastery in the working out but originate in insights that are beyond the reach of conscious analysis.” He formulates the ultimate goal of strategically-minded entrepreneur as follows: “In business as on the battlefield, the object of strategy is to bring about the conditions most favorable to one’s own side, judging precisely the right moment to attack or withdraw and always assessing the limits of compromise correctly.” Kenichi

Ohmae explains, “Besides the habit of analysis, what marks the mind of the strategist is an intellectual elasticity or flexibility that enables him to come up with realistic responses to changing situations, not simply to discriminate with great precision among different shades of gray.” If applied to the contradictory situation where the conventional strategies don’t help, this definition of habits of strategic mind predicts counterintuitive solution, use of non-conventional strategies.

The dynamics of evolution of strategic events in business life is described in detail by Al Ries and Jack Trout.¹⁰ They explained why and how the customers change or keep their preferences: customers prefer products of company who is the #1 than “better products,” and this happens because company #1 managed to occupy the “top position on the ladder” in customers’ minds, in their perception. Authors also explain what the company should and shouldn’t do to get to this top position, and how the long-term results of any company’s action become opposite to the short-term results of the same action. This clear explanation of dual nature of events in the relationships between companies, their products and their customers’ perception helped a lot in development of business strategic approach described in this thesis. I assume that business recommendations based on this strategic approach became the practical realization of Immutable Laws of Marketing.

The paramount importance of protecting the business from legal competitive blows is vividly and instrumentally described by Thomas Schweich.¹¹ He explains that “the vast majority of business lawsuits, and the cost and disruption that go along with them, would be avoided if employees at all levels, in businesses of all sizes, simply took control of the situation.” This understanding is especially “issue of life or death” in innovative startup, where the first lawsuit quickly becomes the last one: even before it is done, the company is practically dead. The spirit of his approach had been used in broader sense in suggested strategies.

Innovative Tools and Approaches Aimed at Resolution of Business Problems

Most of innovation approaches, including TRIZ, are “technology-oriented”: they solve the problem, “What else could be done in this situation.” Brainstorming, Value Analysis and Value Engineering, Six Sigma, Quality Function Deployment and many other methods¹² are aimed at generation of new ideas on product or process improvement.

Technology orientation of these methods is, of course, very useful. People can quickly produce new ideas that otherwise would take a long time to be invented. However, this orientation also produces the negative effect. These methods usually “don’t care” about the reason why those ideas are needed. As a result, the vast majority of ideas, although feasible, remain “not called for.” Customers don’t want them.

Wording “vast majority” doesn’t even reflect the actual sad statistics behind this fact. As Stevens and Burley discovered, 3,000 raw ideas = 1 commercial success.¹³ Isn’t this a waste of mental efforts? Six years later, the same authors wrote,¹⁴ “...in spite of the innumerable changes in NBD thinking over the last 50 years, in spite of all of the NBD staged-gate processes that have been put in place, and in spite of the many studies of NBD success

factors, the overall odds of success at the commercial launch stage have remained essentially unchanged.”

The question remains, why this happens? Why all attempts of improvement of New Business Development in last 50 years didn't change the odds of success?

It looks like the reason is simple. Main improvements made in last 50 years in innovative approaches have technological orientation, while businesses focused on commercial success have “customer orientation. They continuously solve the problem, “What can satisfy our customers better?”

Can innovative approaches address this problem? It is not a surprise, the answer is, “Yes, of course they can.” They can if this problem is formulated overtly. Then, all the idea generation could be focused on search for customers' satisfaction. Even QFD, with its search for Voice of Customer (VOC), doesn't generate ideas with overt aim at customers' satisfaction; it only selects the ideas that seem to improve customers' experiences...

However, the experience shows that applying the conventional innovative approaches to the customer-oriented problems usually looks like “adding and subtracting with slide-rule.” There is a way to do it, but this way is cumbersome. On the other hand, there are only few innovative approaches specialized for search for new ways to satisfy customers.

Anthony Ulwick is the most consistent and persistent developer of customer-oriented structured innovation. He wrote,¹⁵ “From the customer's perspective, products and services are used to help them better execute some underlying process. A product is simply a point-in-time solution designed to help execute a process. Customers have a clear knowledge of the underlying processes they are executing and the elements of that process that are important to them. Capturing the customer's requirements on the underlying process - not the product designed to help execute that process - is the key to creating a breakthrough concept. This is the heart of the issue. Capturing requirements on the underlying process will deliver the information needed to create a breakthrough product or service concept. Collecting requirements on the product itself will not.” Later, he developed the comprehensive methodology that discovers the actually important, but under-served outcomes, and thus focuses the companies exactly on real business opportunities.¹⁶ This methodology is based on modeling the customer's process of use of the product in format of outcomes the customers need to accomplish. The outcomes that are important, but under-served exactly pinpoint the improvements the customers will appreciate. Hence, innovations are from the very beginning aimed at improvement of customers' satisfaction, not at “use of manufacturer's capabilities and core competencies.”

Another author who focuses the innovators' attention on customers' interests and needs is Geoffrey A. Moore. He writes,¹⁷ “Every truly innovative high-tech product starts out as a fad – something with no known market value or purpose but with ‘great properties’ that generate a lot of enthusiasm within an ‘in crowd.’ That's the early market. Then comes a period during which the rest of the world watches to see if anything can be made of this; that is the chasm. If in fact something does come out of it – if a value proposition is discovered that can predictably be delivered to a targetable set of customers at a reasonable price – then a new

mainstream market forms, typically with a rapidity that allows its initial leaders to become very, very successful.”

His message is clear: deliver to the market what customers expect, and you’ll be successful. He describes how customers’ expectations change in time – and how to deliver every time on these expectations. Interestingly, this dynamics does not involve any “inventiveness” in conventional meaning of this word... Quite opposite, he explains that while expanding to the new markets and market niches, the company should use products “derived” from the initial product.¹⁸ Hence, the systematic innovative approach capable of generating the “similar” or “derived” alternatives is needed.

TRIZ Tools Aimed at Resolution of Aggravated Contradictions

Life in business, at any stage of its evolution, is full of various contradictions. These contradictions usually become visible when they are already strongly aggravated. Moreover, they are entangled with other contradictions. These contradictions are formed in psychological and sociological terms such as personal interests, incentives, motivations, benefits, gains, losses, etc. These terms are hardly translatable to clear and understandable technological terms.

TRIZ tools, however, from the very beginning were created for resolving the contradictions in technology that is simpler and comprehensible than psychology and sociology. More often than not, one can, through formalized analysis, single out the contradiction, even if it is entangled with other ones. As a result, the tools for addressing the contradictions in technological area are pretty simple, such as 40 Principles,¹⁹ Separation Principles²⁰ or Su-Field Analysis.²¹ These tools are even formulated in mechanistic terms that can be translated into terms of other, non-mechanical areas of technology.

However, contradictions with psychological and sociological roots are hard to single out from one another and formulate in non-fuzzy terms. Moreover, there is no relevant analogy between psychological or sociological notions involved in the problem and mechanistic notions of tools for problem-solving. As a result, straightforward application of TRIZ to the business problems seems difficult for any formalization. Hence, the results of application strongly depend on personal preferences and capabilities of problem-solver.

These considerations explain the reason why TRIZ problem-solving tools cannot be reliably applied to the business problems “as is”: their recommendations are either non-applicable, or too one-sided, or based on personal biases rather than on actual situation.

On the other hand, the successes of “unreliable” use of TRIZ in various areas of business²² create the expectation that TRIZ fundamental principles, if properly used, can address the business problems.

Hence, we need to develop the problem solving and forecasting tools based on the same fundamental principles, but formulated in terms that are close to the nature of business problems: psychological and sociological.

Research showed that Mother Nature doesn’t know any contradictions. Contradictions occur in our minds when reality doesn’t fit our expectations, when results of our actions are far

from expected, or when something “impossible,” “unbelievable” or “non-expectable” happens. As one can see, the keyword here is “expectation.” The roots of our expectations are in assumptions that we make based on our beliefs and values. Chester L. Karrass²³ wrote about assumptions, “Assumptions are potential hurdles that can move us in the wrong direction. They can lead buyers to make high offers when low ones are called for. They can cause sellers to make low demands and quick concessions when opposite actions are warranted. Assumptions can seduce us into believing deadlines when patience is by far the better course... Don’t fall in love with your assumptions. Check them out: They are neither right nor wrong until proven so.”

The fact that assumption, when it is wrong, creates the contradiction doesn’t mean that we should avoid any assumption in our thinking. Such conclusion is way too “straightforward” to be correct. It is much more important to reveal the nature of assumptions, the reasons why people use them, and the ways to deal with assumptions when they silently, unwittingly become dead wrong.

Analysis of assumptions described in literature and involved in various innovative projects show the following. Assumption consists of two parts: “explanation” and “generalization.” Explanation is usually verifiable, “measurable.” Generalizations, on the other hand, are kind of “absolute.” The best description of generalizations was found in NLP literature. For example, Joseph O’Connor and John Seymour²⁴ write, “A generalization is when one example is taken as the representative of a number of different possibilities. If we did not generalize, we would have to do things over and over again, and to think of all possible exceptions and qualifications would be too time consuming. We sort our knowledge into general categories, but we gain knowledge in the first place by comparing and evaluating difference, and it is important to continue sorting for difference, so generalizations can be changed if necessary... Being willing to admit exceptions allows you to be more realistic. Decisions do not have to be all or nothing... Generalizations are made by taking a few instances as representing the whole group, so they usually contain generalized nouns and unspecified verbs... Generalizations are usually expressed by words like ‘all,’ ‘every,’ ‘always,’ ‘never’ and ‘none.’ These words admit no exceptions, and are known as universal quantifiers... Universal quantifiers are paradoxically limiting. Extending a statement to cover all possibilities, or deny all possibilities, makes an exception difficult to spot. A perceptual filter, or self-fulfilling prophecy is created – you will see and hear what you expect to see and hear.” This psychological mechanism looks similar to the one that practicing TRIZ consultants often see in their clients who are “deep in aggravated contradiction.” Hence, one could expect that exploring this psychological nature of contradiction might lead to development of psychology-based tools for addressing the business contradictions.

Summary of Chapter 1

This chapter discloses the importance of developing the strategic approach to the inevitable competitive attack that follows the first commercial success of innovative enterprise, and need in purposeful development of TRIZ-based methodological tools for this objective.

In author's opinion, the most urgent is development of tools for addressing the business contradictions and for revealing as many as possible alternatives to the innovative idea the enterprise is commercializing.

In the subsequent chapters of this dissertation thesis one can find other quotes from business and TRIZ literature that are logically connected to the methodological tools and strategies developed by author.

Chapter 2. Development of TRIZ-Based Tools for Addressing the Aggravated Business Contradictions and Systematically Searching for New Markets

This chapter describes the system of interrelated aggravated contradictions, development of tools for addressing these contradictions and systematic search for new markets and market niches for innovation.

This chapter for the first time describes in detail an important stage in evolution of any innovative business: inevitable competitive attacks taken by stronger companies that immediately follow the first substantial commercial success of innovation. Author shows that competitive blows are directly caused by commercial success, but strength of competitive blows is disproportional to the size of this success. Author also reveals the mechanisms of occurrence and aggravation of contradictions that hinder the innovative businesses' ability to successfully counteract to the competitive attacks that aim at extermination of innovative business. These contradictions are brought to life by widely accepted among the entrepreneurs beliefs and assumptions related to the "unwritten rules" of "fair competition." These unwritten rules inevitably create the conditions under which the stronger competitor always wins and weaker competitor always loses. But any business introducing the breakthrough innovation to the market is initially in the weak position regardless to the size of company – and must win in competition. This is the root cause of contradictions typical for this stage of evolution of innovative business.

According to the nature of contradictions under consideration, the author developed the new method of analyzing and addressing the aggravated contradictions; this method is based on revealing and inverting the assumptions that cause occurrence and aggravation of these contradictions.

Author also revealed and systematized the relationships between typical contradictions that characterize this stage of business evolution. Since simultaneous analysis and addressing of these interrelated contradictions is impossible, author uses conditional separation of these relationships. Later, this approach provides for opportunity to resolve each contradiction individually, and then, by reestablishing of separated relationships, combine the solutions (strategies into the integral strategic approach.

One of the most important strategies is conquering of new markets. However, there is no systematic approach to the issue of diversification of innovation. To fill this gap, author used patterns of evolution of innovations to develop the method of systematic search for new markets and market niches for company's innovations. This method has been successfully tested in multiple real-world projects. This method combines functional analysis of innovation and method of revealing all possible alternative realizations of function. Separate components of this method were suggested before by G. Yezersky, G. Frenklah and V. Prushinskiy; however, only integration of these components produced the usable and efficient method.

Key Contradiction Created by Success

Achieving the business success is the ultimate goal of any entrepreneur. Only success can compensate an entrepreneur for all efforts, risks and pains experienced while starting a new business. If a business does not bring success, it brings financial losses that pile up on the top of futile efforts, realized risks and uncured pains.

Entrepreneurs rarely recognize that business success is a double-edged sword. Of course, it opens the new opportunities to the successful business. But at the same time it opens the Pandora box of competitive hostility.

The reason to this two-sided consequence is simple. In any market, at any given moment, the population of Target Customers is limited. Hence, all business participants at this market are competing over the limited supply of Target Customers and dollars in their wallets. Any business succeeds by attracting the Target Customers and their dollars to the products and services provided by this business. And it goes at expense of other businesses offering the similar products and services. So, all businesses who lose their customers and dollars take such success of competitor as a hostile act against them. And, since the business is combat, they have to respond to such hostile act with similar hostility, sometimes at non-proportional level.

Now, the successful business faces the need to divide its limited resources between further development of business to fully exploit the success and escalating fight against competitive acts. If resources are insufficient for both activities (and usually they are), the successful entrepreneur faces the following contradiction (dilemma):

Successful company should fight back against the hostile competitive acts...

...but successful company should not fight back, because its resources should be used for further business development.

If there is a space for trade-off, the company can maneuver with its limited resources to meet both goals: attract new customers and repel the competitive blows. However, there is the situation when there is no space for any trade-off.

The Most Dangerous Stage in Evolution of Innovative Business

If successful business is well-established in the market, its resources are sufficient for both purposes, to expand the business and to fight the competition. In many situations, successful business already accumulated enough resources to do both to a limited extent. However, there is one situation when successful business is typically small and weak, even if it is a part of a large corporation, and its competitors are typically large and strong. It happens when innovative business achieves its first success, when Target Customers for the first time find out and accept the improvement provided by innovation. The business has no record of previous success, so it cannot attract enough capital (either from investors or from a large corporation it is a division of) to expand the business and fight the competition. The business's customer base is still small, while its competitors have a long history with vast majority of Target Customers population. Hence, the innovative business at the moment of

its first success is inherently weak and small, while its competition is inherently strong and large.

As a result, the small innovative business faces the following aggravated dilemma right after it achieves its first substantial success:

Entrepreneur should fight back against the inevitable hostile competitive acts of large competitors...

...but entrepreneur should not fight back because it would be deadly for an innovative small business.

The reason for deadliness of such competitive fight is obvious. Competitive response consumes a lot of company resources. These resources, however, are scarce or even unavailable to the small company. As a result, the competitive fight leaves the small company drained of any resources needed for surviving and continuing the business.

The fact that competitive acts are hostile is obvious; the fact that some competitive acts are inevitable isn't so. If we look at the situation from position of a large corporation whose customer base is continuously eroded by efforts of multiple small competitors, we do understand how urgent is large company's need to fight at least the most successful ones. If a large company allows small businesses to take its customers away, its customer base disappears faster than a piece of ice under hot spring sun. Hence, as soon as a small business shows success with an innovation that customers like better than large corporation's product, and the number of diverted customers grows beyond some threshold, the large corporation has no other choice but fiercely respond with all its resources to this assault.

The typical lawful competitive reactions include, but are not limited to:

- Copycatting or "reverse-engineering" of competitive product;
- Commercialization of the copycat under a well-established brand;
- Introduction of some insignificant improvements and emphasizing them in marketing campaign;
- Commercialization of simplified, lower-quality copycat;
- Price reduction, even selling the new product "for free," e.g. via bundling it with another product;
- Cost reduction due to the larger-scale manufacturing;
- Commercialization of the copycat through better developed distribution channels;
- Implementation of competitor's idea that looks very promising;
- Filing the "patent infringement" law suit against the competitor;
- Inspiration of a litigation against the competitor or its product;
- PR campaign against the competitor or its product;
- Acquisition of competitor.

All these lawful competitive responses are hostile; we don't even consider the hostile responses that are either illegal or "in the twilight zone" of legitimacy. Moreover, these competitive responses exploit to the maximum extent the key advantage of "being large": the enormous amount and wide variety of available resources, including manufacturing capacities, capital, lawyers, etc. The small company cannot afford some of these resources,

and has others in limited supply. Hence, the fight “by conventional rules of the honest competition,” i.e. “an eye for an eye,” typically ends up in invisible dent on the large corporation’s image, while the small company goes out of business or, in the best case scenario, loses momentum and never recovers. As the Lanchester’s strategies predict²⁵, the small company cannot win in the frontal attack against the large corporation.

Does it mean that a small company cannot survive and even win in the competitive war against the large corporation? The history of business says, no, this is not true. There are a lot of cases when small companies managed to succeed in competition against the “big guys.” How come?

If natural evolution favored only stronger and larger creatures, there wouldn’t be any people on the Earth, only huge dinosaurs. If military evolution favored only larger armies, there wouldn’t be any small countries in the world, only huge empires. If economical evolution favored only larger corporations, there wouldn’t be any start-ups in the business world, only huge international conglomerates. However, evolution favors only the “fittest,” not the “largest.”

The logical “common sense” conclusion should be as follows:

There is no reason for small business to involve itself in the frontal, “an eye for an eye” confrontation with large competitors. Since the success of small business incurs inevitable hostile competitive response from a large corporation whose customer base is affected by this success, the small company should be prepared ahead of time for such competitive blows. Small company’s strategy for responding to the competitive attacks should be based on advantages of “being small” rather than on “fair fighting,” because rules of “fair fighting” favor the larger competitor.

Unfortunately, “common” sense is the rarest thing in this world; vast majority of successful small business don’t expect any counterstrike. When caught unaware and unexpectedly hit by competitive attack, they run boldly and blindly in to a litigation fight or price war against “unfair” large competitors, and – predictably – bravely “die,” i.e. go out of business. Do the entrepreneurs learn the lesson? No, they usually do not. They continue going around with high-raised chin, proud of their own bravery, and cry to anybody that “those big bastards stole my precious idea.” They do find understanding and sympathy in other victims of “tyranny of large corporations” and those anti-capitalism revolutionaries who amplify this cry to an enormous level.

Fortunately, entrepreneurs who possess unconventional common sense or derive it from lessons learned by themselves or their friends become aware of this risk and its inevitability. They prepare for the competitive blows ahead of time, as soon as they “begin becoming successful.” They meet the competitive moves well-prepared, and respond to them by their own rules, not by “conventional” ones. As a result, these smart entrepreneurs, with minimal losses, stay in business, and their momentum of success is not reduced a bit.

Aggravated Business Contradictions

The first substantial success of innovative business is always accompanied with limited, even scarce resources. This scarcity creates the contradiction, “to fight back or to expand business.” Moreover, this scarcity doesn’t leave any room to trade-off. From TRIZ standpoint, this is the situation of aggravated contradiction. Probably, in simple world of technology it is really so.

However, in entangled, overcomplicated business world the situation is even more aggravated. The only solution that resolves this contradiction, in its turn, gives birth to multiple similarly tough contradictions.

Here, we need to “jump ahead” and consider the Catch Me If You Can strategy that resolves the contradiction “to fight or to expand.” The detailed analysis of this contradiction and solving process will be described later.

Sketch of Strategy

The Catch Me If You Can strategy could be described in the following way:

Stakeholders are better satisfied with not-so-big, but sustainable success than with big success that then quickly diminishes under competitive attacks. Hence, the smart strategy of small company is to achieve relatively small sustainable successes, and accumulate them into the really big success by the moment of exit. These small successes should be achieved in multiple areas, in multiple markets and market niches, with multiple sequential product generations, with multiple differentiations. In this way, the small company can avoid “waking up” the large competitor. When large competitors begin “hunting” the small company by copycatting its product, price reduction or litigation, the small company should “run away” to the next generation product, to the different target customer, to the new market niche or market. The small company’s competitive response should differ from the way the large company attacks. This response should not be resource-consuming, but it should exploit the small company’s strength and advantages to the maximum extent. We should also understand that some competitive responses are not available to the large corporation, and small company should exploit them to its maximum advantage.

Hence, the winning strategy for a small company consists of three approaches:

- (1) Prepare the new grounds, e.g. next generation products, new markets, new differentiations, etc., ahead of time;
- (2) Accumulate the big success from multiple successes small enough to avoid competitive attention; and
- (3) Under competitive attack, run to the new grounds, don’t fight back.

If small company follows this strategy, no large competitor can hit it. That’s why this strategy is called, “Catch Me If You Can.” This strategy’s closest analog is guerrilla war in which a large regular army has no chance to win against small, irregular guerrilla units.

Dilemmas Inherent to This Strategy

The most obvious dilemma inherent to the “Catch Me If You Can” strategy is as follows:

The company should launch multiple products and marketing campaigns to address multiple diverse customer bases in order to realize the strategy...

...but the company cannot launch multiple products and marketing campaigns because launches cost a lot and involve enormous efforts, and the company doesn't have spare money and workforce.

This dilemma is a serious objection to “multi-product, multi-market” approach: even the large corporations, with seemingly substantial resources, say they can't afford the often launches.

Another dilemma related to the company's product is as follows:

The company's product should be “simple” so that it is easy to launch, produce at low cost and sell at high price for its high value...

...but this product shouldn't be “simple,” because competitors can easily copycat it and “steal” the customer base.

The risk of losing market share to the faster and bigger competitors is sometimes so paralyzing that companies prefer not to implement their best innovations.

The large companies usually differentiate themselves via the advantages of scale: wide distribution, low costs and prices, wide variety, etc. Small businesses cannot acquire these strengths of large companies. If customers prefer the benefits of large company's brand, the small business quickly loses its customer base. Hence, the dilemma:

Small business should provide to its customers the same benefits as large companies provide in order to keep its customer base...

...but small business shouldn't provide these benefits, because small business cannot afford the large-scale capabilities.

This dilemma is “absolutely unsolvable” if small businesses try to achieve large-scale advantages with small-scale capabilities. These attempts lead them along the death spiral of continuous financial losses.

Next dilemma is “obviously” derived from the “multiple small successes” approach:

The small company should address multiple target customers with multiple products in order to accumulate the substantial success...

...but small company shouldn't address multiple target customers with multiple products, because this approach scatters scarce human resources without focus.

This dilemma scares investors off because they believe management team is totally unfocused. This dilemma blocks implementation of “Catch Me If You Can” strategy, because human resources are really scarce, and should be very focused in their efforts.

If a small company has too many opportunities, it cannot pursue each one in attempt to reveal which ones “work”; the following dilemma, if foreseen, scares companies off from multi-opportunity approach:

The small company should have multiple opportunities to realize the multi-product, multi-market approach...

...but small company shouldn't have multiple opportunities because it doesn't have enough resources to test them all to reveal which ones are the most promising.

This dilemma is based on assumption that all opportunities look equal before they are tested, and each one should be tried before deciding where to go next.

Pursuing multiple customer bases raises another dilemma, too:

The small company should have large sales force in order to address multiple markets and market niches with multiple products...

...but small company shouldn't have large sales force, because large sales force is unaffordable to small company.

This dilemma presents the everlasting problem even to the large companies. It looks especially unsolvable to the small innovative business.

If the small company, despite its best efforts to hide its successes, wakes up the large competitor, it would face the following dilemma:

The small company should be hit hard by large competitor, because the competitive acts are swift and hostile...

...but small company shouldn't be hit hard, because it can hardly survive the hard blow.

This dilemma is, actually, typical to any prey in the world full of predators. Even the best solutions found by Mother Nature cannot always prevent the kill: otherwise, all predators would be already extinct.

One of the strongest competitive acts, especially in the US, is litigation. Even if a small company is careful enough to avoid any serious accusations, it always remains vulnerable to patent infringement litigation, thus facing the following dilemma:

The small company should keep sufficient resources to win the patent infringement litigation, because it is always vulnerable to it...

...but a small company shouldn't keep sufficient resources for litigation, because company cannot afford “freezing” any scarce resources.

Patent litigation attacks aren't that rare as one could expect. In some industries, large corporations sue small businesses practically for every patent, simply to get rid of potential competitors.

Last, but not least dilemma is related to “peer” competition, i.e. competition of other small companies:

The company should successfully compete with “equal” competitors in order to keep and grow its customer base...

...but the company shouldn't compete with “equal” competitors, because this competition consumes scarce human and financial resources.

Any business is rather the “pond of piranhas and sharks” than the “peaceful Blue Lagoon.” How one who isn't the piranha itself can survive under such conditions? Seems like “Mission Impossible”...

Summary on Aggravated Business Contradictions

As you could see, the aggravation of business contradictions goes much farther than aggravation of contradictions in technology.

In technology, “aggravated contradiction” means situation where resource that might provide for trade-off is totally absent. Solution to such contradiction usually bring a few “subsequent problems” that are easier to resolve than the initial contradiction.

In business, on the other hand, this term describes the situation where complete absence of the “trade-off” resource is accompanied with multiple interrelated contradictions of similar level of “unresolvability” created by solution to the initial contradiction.

Hence, it seems unrealistic to address such “over-aggravated” contradictions with relatively simple tools that are good for technological problems.

Development of TRIZ-Based Tools for Addressing the Aggravated Business Contradictions

The approach to resolving the unsolvable dilemmas described in this dissertation is not a “pure development of my mind.” It stems from TRIZ notions of contradiction and separation principles.²⁶ Although the separation principles work OK, and mastering them isn't a “rocket science,” I dug a little bit deeper to find out how they work. As a result, I've found the direct connection to the fundamental principles of human mind.

When this approach should be used? Every time when facing the “impossible” challenge, the “unsolvable” problem, or “lose-lose” situation. Especially, when facing the aggravated contradictions with multiple interrelated subsequent dilemmas. Then, one needs to follow these simple steps:

1. Formulate every dilemma as an independent one;
2. Explain reasons for every output of dilemma;
3. Determine the assumption behind this dilemma:
 - a. Add the latent generalizations to explanations;
 - b. Find out which generalizations create unsolvable situation;
 - c. Analyze the reasons for these generalizations;
4. Invert the latent generalizations;
5. Formulate new assumptions;
6. Reveal the opportunities to resolve the dilemma;
7. If there are multiple interrelated dilemmas, combine the opportunities to resolve each of them into the robust Concept of Solution.

What Is Dilemma?

While philosophers still argue on the nature of dilemmas, we should get a “useful working definition” of the word *dilemma*. Rephrasing Geoffrey A. Moore,²⁷ *Useful* in this context means actionable – can we find in the concept of dilemma a reasonable basis for taking actions that will predictably and positively affect problem-solving process? That, after all, is the purpose of this chapter.

This definition isn't that difficult to find. Dilemma is the confusion, in our mind, between two seemingly incompatible perceptions of the same phenomenon. These perceptions are usually “expectation” and “observation.” Hence, *we face dilemma when actual outcome of an event differs from an outcome we expected or assumed to get.*

Dilemma

Usually, dilemma manifests itself in the following situations:

1. You need to get two different outcomes, but, as you assume, they are incompatible;
2. You need to get the specific outcome under specific conditions, but you assume that this outcome cannot be produced under these conditions;
3. You need to do something, but this action produces or is assumed to produce both desirable and undesirable outcomes;
4. You do something and assume some outcome, but actual outcome is either inadequate or significantly worse than expected; or
5. You do something to produce desirable outcome, but you cannot avoid unexpected undesirable side effects.

Those situations are, actually, the same; the difference is in our perception only.

Formulate the dilemma in the following way:

I should do [X] to get desirable outcome [Y]...

...but I shouldn't do [X] because it produces undesirable outcome [Z].

Write here exactly what you are going to do, i.e. [X], to get the desirable outcome [Y]. The last portion of formula might be:

- ...because it cannot produce another desirable outcome [Z];
- ...because another desirable outcome [Z] cannot exist under such conditions;
- ...because desirable outcome [Y] cannot exist under current conditions;
- ...because it also produces undesirable outcome [Z];
- ...because desirable outcomes [Y] and [Z] are incompatible;
- ...because it cannot produce sufficiently good outcome [Y]; or
- ...because it is accompanied with intolerable side effect [Z].

Simplified Model of Dilemma

Now, we can – for our convenience – represent dilemma in a form of visual, graphical model:

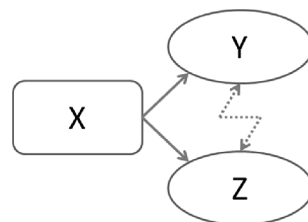


Fig. 1. Simple Graphical Model of Dilemma

This model describes the following situation:

Action X produces two outcomes, Y and Z, these outcomes are “contradictory” in one or another way, and this “contradiction” cannot be tolerated anymore.

We call this model “simplified” because it contains only overt information, and represents no analysis. Of course, you can address the dilemma using even this minimum of information. Analysis shown below makes addressing the dilemma even more efficient.

Case Study: Kelley Plays KRAG*

Let’s take the following story as an example of dilemma:²⁸

Kelley has a problem: “I want a KRAG video game and my mother doesn’t want me to have it. I want to have a fun, and KRAG* is fun. But mother says, ‘They’re too violent, they’re too violent.’ Maybe, she’s upset.”*

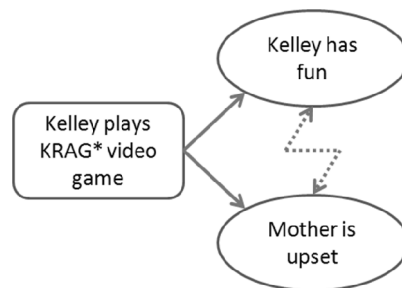


Fig. 2. Graphical Model of Conflict

This story could be formulated in format of dilemma as follows:

Kelley should play KRAG* video game to have fun...

...but Kelley shouldn’t play KRAG* video game because his mother becomes upset.

The simplified model looks like this:

Separation Principles

As we already told, dilemma can be addressed even at this stage of consideration. TRIZ uses for this purpose a simple tool called “Separation Principles.”²⁹

The idea of Separation Principles could be explained as follows:

Action X is separated into two portions, X1 and X2 so that X1 produces only outcome Y and X2 produces only outcome Z. These outcomes are produced under different, incompatible conditions. As a result, they don’t “contradict” each other anymore.

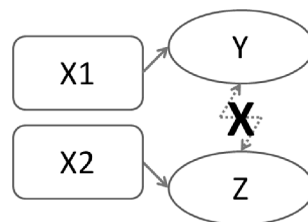


Fig. 3. Graphical Model of Separation Principles

TRIZ considers the following Separation Principles:

1. Separation in time: Y and Z occur at different moments of time;
2. Separation in space: Y and Z occur in different places;
3. Separation upon conditions: Y and Z occur under different conditions; and
4. Separation in system: Y and Z are produced by different parts of system, or Y is produced by part and Z is produced by whole system.

Use of Separation Principles is pretty straightforward, but they do require a lot of creativity.

Moreover, the Separation Principles approach doesn't contain any suggestions on how to apply these recommendations to non-technological situations, where terms "space," "time," "condition" and "system" have pretty fuzzy meanings. Neither there are suggestions on use of any "separation" in cases where no separation could be even imagined. Hence, Separation Principles could hardly be used to address the aggravated business contradictions.

Assumption: The Core of Dilemma

As we already saw, the dilemma occurs when our assumptions or expectations either don't fit the reality or don't allow us to produce the desirable reality. Usually, while considering the technological situations, it is enough to consider "what we see," the actual technological system. Then, we don't need to analyze the intents and assumptions of people who created this technological system. In the case of business situations, the "system" is not as "visible" and "clear," so we cannot limit our analysis to "considering what we see." Business situation is rather clash of multiple personal interests. Then, we need to consider the intents and assumptions of business people involved.

Our assumptions are usually unspoken, subconscious. This prevents us from finding the "broken link" and correcting our understanding of situation-at-hand. As a result, if an assumption is wrong, we face the "unsolvable" dilemma.

Assumption

Assumption is a typical logical structure, "input A produces outcome B," spiced with so-called "generalizations," i.e. words like "always," "everywhere," "all," "never," "nowhere," "nobody," etc.³⁰ In the day-by-day life, generalized assumptions are fast and convenient substitutes for time-consuming analytical considerations. These assumptions, more often than not, are true, at least to us, so we can safely use them as guidelines.

Note: Actually, there are two types of generalization. We can call them "deductive" and "inductive." Generalization is inductive, i.e. "from particular to general," when different objects or phenomena are related to the same more general category. For instance, such different objects like table, chair and sofa are related to the same category "furniture." On the other hand, generalization is deductive, i.e. "from general to particular," when all objects or phenomena belonging to the same more general category are arbitrarily taken as possessing the same feature or attribute unrelated to the category itself. For example, "common belief" that all nice-looking or well-outspoken people are honest makes us believe everything that well-outspoken crook tells us. In this dissertation, word "generalization" means "deductive generalization" unless the other meaning is overtly stated.

From time to time, we get into the situation that doesn't fit the generalization, and then the assumption becomes dead wrong. We assume that *all* people think like us, and this is usually more or less true, but then we meet somebody whose thinking drastically differs from ours. We assume that people *always* should be good with us, and this is usually true, but sometimes there are people who don't give a dime to our feelings and easily hurt them. If these "bad" experiences are passing by, then we stay comfortable with our assumptions. But if such experience stays with us, then we have to choose whether we should cope with bad experience or change our assumptions.

Chester L. Karrass writes about assumptions,³¹

"Never trust your assumptions. They are as likely to be wrong as right. I had a professor who used to start his class every term by writing the word 'assume' on the blackboard. 'ASS-U-ME,' he said, 'can make an ass of you and me.'

"The reality of negotiation is that we must and should make assumptions about the opposing party. We must assess as best we can what he can or will do, what risks he is willing to take and what decision criteria are most important to him (price, delivery, quality or service). The important thing to remember is that your assumptions are just that. They are no better than poorly educated guesses at best.

"Don't fall in love with your assumptions. Check them out. They are neither right nor wrong until proven so."

If an assumption created the dilemma, one should better believe it is wrong.

Assumption behind the Dilemma

The assumptions that create the dilemma in our mind "explain" us why [X] produces both [Y] and [Z]. We could show how these assumptions, [A1] and [A2], produce the dilemma, in the following way:

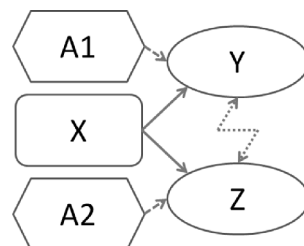


Fig. 4. Assumptions behind the Dilemma

This model could be described as follows:

We do X because assumption A1 says us it will produce outcome Y; assumption A2, in its turn, says that doing X will also produce outcome Z. For some reasons, outcomes Y and Z "contradict" each other.

This assumption might be correct – under "typical" circumstances. Now, one needs to discover where the latent generalization is involved "by default."

First, to discover the assumptions, we need to ask, "Why do we expect that doing X will produce Y / Z?" The answer provides us with "explanation."

The distinction between “explanation” and “assumption” is as follows. Assumption includes at least one generalization, while explanation might not. Generalizations belong to the following categories:

1. “All-including” generalizations, such as “always,” “everywhere,” “under any conditions,” “everybody,” “everything,” etc.;
2. “All-excluding” generalizations, such as “none,” “never,” “nowhere,” “under no conditions,” “nobody,” “nothing,” etc.; and
3. “Limiting” generalizations, such as “only,” “one,” “the same,” etc.
4. “Expanding” generalization, such as “any,” “many,” “different,” etc.

To produce an assumption from explanation, we need to add to this explanation various generalizations, and check which ones “stick,” represent the “common knowledge” or “mutual belief.” Check each new assumption if it (a) sounds reasonable and (b) makes the dilemma unsolvable. The generalizations that satisfy these two conditions are the ones to work with.

The comprehensive model of dilemma looks like this:

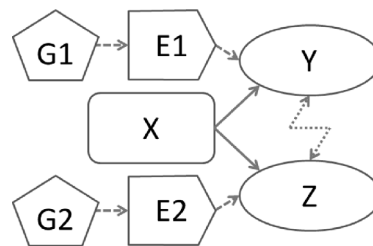


Fig. 5. Comprehensive Model of Dilemma

We do X because explanation E1 says us it will produce outcome Y, and generalization G1 suggests that it will happen under current conditions; explanation E2, in its turn, says that doing X will also produce outcome Z, and generalization G2 suggests that it will happen under current conditions. For some reasons, outcomes Y and Z “contradict” each other.

Changing the Assumptions

Coping with continuing bad business experience makes any entrepreneur the victim of circumstances, which is another definition of loser. This dissertation, however, aims at development of winning business strategies. The only serious way to win in aggravated bad business situation, thus, is to change the assumption that has been proven wrong.

We already found out that the component of assumption responsible for its “wrongness” is the generalization. If we somehow modify this generalization, we can “repair” the assumption. Since the result of such repair is turning the assumption “upside down,” from “wrong” to “right,” the repair itself should be similarly drastic: we need to turn the generalization “upside down,” too:

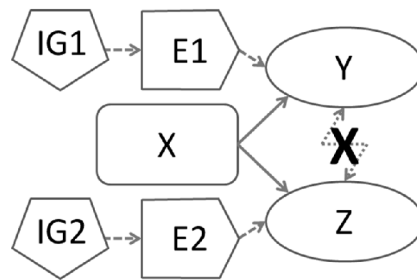


Fig. 6. Inversion of Generalizations

We do X because explanation E1 says us it will produce outcome Y, and inverted generalization IG1 suggests that it will happen under current conditions; explanation E2, in its turn, says that doing X can produce outcome Z, while inverted generalization IG2 suggests that it won't happen under current conditions. As a result of this inversion, outcomes Y and Z don't "contradict" each other anymore.

If we invert the generalization, we produce the different assumption comprising the words like "not always," "somewhere," "somebody," "sometimes," etc. For example, we assumed before that **all** people think like us. Now, the inverted assumption says, **not all** people think like us. In other words, some people think like us, but some people think in very different way. The latter assumption makes us more flexible in this world. It provides us with opportunity to resolve the dilemma caused by old assumption. For example, we found out that we deal with people who think in totally different way. With old assumption, we had to helplessly and hopelessly wonder what's wrong with these people. We couldn't recognize that something is wrong with our perception. With new assumption, we open our mind. Now, we can find out "their" way of thinking and deal with it in reasonable way.

Process of Inverting the Assumption

Of course, changing the assumptions is not that easy. First, we need to find out what dilemma we're addressing. Then, we need to determine the assumption that produced that dilemma. Then, we should find out the latent generalization in this assumption that rendered the dilemma unsolvable. Then, and only then, we can invert this generalization, reformulate the assumption, and reveal the opportunities to resolve the dilemma.

Of course, each of these steps is itself a step-by-step process. Currently, for simplicity sake, the process is presented in form of basic steps:

1. Formulate the dilemma;
2. Determine the assumption behind this dilemma;
3. Find out the latent generalization;
4. Invert the generalization and formulate the new assumption; and
5. Reveal the opportunities to resolve the dilemma.

Inversion and New Assumption

One should begin inverting the generalization with preceding it with word "Not." The result is something like "Not only," "Not always," or "Not nobody." Sounds a little bit strange, but makes sense, doesn't it?

Then, the assumption should be reformulated according to this negated generalization. For instance, assumption "All information should be available," after negating the generalization

“all” becomes, “Not all information should be available.” After reformulation, it looks like, “Some information should be available, and some not.” Now, this new assumption should be thoroughly analyzed. Then, this new assumption is formulated like “Some [T] meet the requirement [U], and other [T] meet the opposite requirement [V].”

Opportunities to Resolve the Dilemma

New assumption provides us with ability to easily formulate the opportunities to resolve the dilemma. For this purpose, the previously “generalized” category [T] should be split into two distinct, preferably incompatible subcategories [T1] that meets requirement [U] and [T2] that meets opposite requirement [V]. For instance, the information in the previous example should be split into two portions, one of which must be available, and another shouldn’t. What if there is any portion of this information that is both available and unavailable? If this portion of information doesn’t contribute to the contradiction, it’s OK. Otherwise, the “new” contradiction created by this particular portion of information should be analyzed more thoroughly. New assumptions and generalizations related specifically to this portion of information should be revealed and dealt with.

Case Study: Kelley Plays Krag* (Continued)

Let’s continue Kelley’s story:

Kelley should play Krag* video game to have fun...

...but Kelley shouldn’t play Krag* video game because his mother is upset.

The simplified model looks like this:

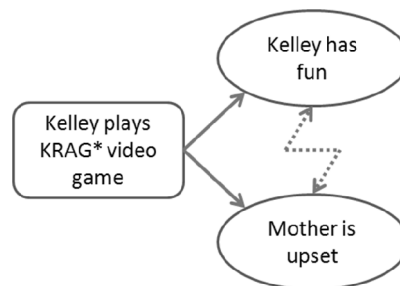


Fig. 7. Conflict

What assumptions have created this dilemma? To find out, let’s ask, “Why?”



Why Kelly expects to have a fun, if he plays Krag*? Because Krag* is a violent game (which is true); while playing violent games, we feel like we participated in dangerous situations without actually risking our lives and health. This is real fun.

Why Kelly’s mom becomes upset if Kelley plays Krag*? Because participation in violent activities teaches us how to behave if violent situation happens (which is true); as a result, we subconsciously acquire the elements of violent behavior, and this behavior can become our nature.



These explanations might be true or false, and we can – at least, in

some specific situations – verify or discard them in properly organized psychological experiments.

Now, let's see which generalizations transform explanations into subconscious assumptions, and then create the dilemma we're facing.

It seems like Kelley considers that “playing any violent game is always fun, and this is the only way to have fun.” His mother, on the other hand, thinks that “playing any violent game always results in violent behavior, and violent behavior is always bad.”

These generalizations, in this particular situation with KRAG* video game, create dilemma due to contradicting outcomes, “Kelley has fun” and “Mother is upset.”

To address this dilemma, we should invert the generalizations and apply new assumptions to the situation-at-hand.

Kelley's new assumption, “Playing some violent games is sometimes fun, while there are other ways to have fun, too,” is much more reasonable. With this assumption, Kelley can select the games that teach useful things, e.g. how to control violent situations, how to avoid being hurt, how to rescue people, etc. He also can find alternative ways to have fun, which his mom could consider as more useful.

Mother's new assumption, “Playing some violent games sometimes results in violent behavior; however, violent behavior only sometimes is bad,” is more realistic, too. With this assumption, she can suggest Kelley playing the violent games that teach him useful things. She can also help Kelley understanding which violent behavior in which situations might be good. She can teach him how to distinguish good from bad.

As a result, both of them will take this situation in more mature and reasonable way.

Need in Systematic Search for New Markets and Market Niches

As we already discussed, the Catch Me If You Can strategy consists of three approaches:

- (1) Prepare the new grounds, e.g. next generation products, new markets, new differentiations, etc., ahead of time;
- (2) Accumulate the big success from multiple successes small enough to avoid competitive attention; and
- (3) Under competitive attack, run to the new grounds, and never fight back.

The latter approach suggests applying the innovation to multiple purposes, expanding it to multiple markets and market niches. However, the history of business innovations shows that this process is usually way too slow compared to the dynamics of competitive war considered here. Hence, the TRIZ-based tools are needed for fast systematic search for new applications of innovation.

Development of TRIZ-Based Tools for Systematic Search for New Markets

Idea Multiplication approach had been discovered in course of analysis of history of spreading the “key innovations” across the markets. The phenomenon under scrutiny was the fact that each significant innovation starts its history in relatively obscure market niche, but then it becomes useful to more and more different Target Customers, satisfies more and more different needs, while “technically” it remains practically the same. It came out that this

phenomenon is rather general rule than accident. As a result, the following fundamental principle had been formulated:

Every “individual” idea is only a small fraction of Idea

This principle means the following: when you’ve got an idea, you actually have envisioned one particular “realization” of more general Idea. Usually, inventors are fixated on this realization, and don’t see other realizations that stem from the same general Idea they’d discovered. More often than not, however, it comes out that this particular realization is not the best under given circumstances, while some alternative realizations of the same Idea might be easier-to-implement with much better results.

Since all alternatives are somehow similar to the initial idea, there is a good reason to make one more mental effort, and envision many realizations instead of one. Then, an innovative entrepreneur can select among them the realizations that are better under his given circumstances.

The Idea Multiplication approach applies the following Rules to different elements of an initial idea:

- Rule 1. Find Direct Alternatives;
- Rule 2. Find Opposite Alternatives;
- Rule 3. Find Status-Quo Alternatives;
- Rule 4. Find Single Alternatives;
- Rule 5. Find Multi-step Alternatives; and
- Rule 6. Find Continuous Alternatives.

All new ideas should be thoroughly documented, even if they look very similar to the initial idea.

Why to Bother Considering All These Alternatives

Research of patents that were supposed to protect the unique ideas and concepts demonstrates that vast majority of them protected only limited set of similar alternatives, thus leaving the rest of alternatives to the competition. Many patent infringement law suits – probably, the most costly ones – were focused on distinguishing between “protected by patent” and “realized in practice” alternatives of the same idea, on deciding whether or not an actual product or process substantially differs from an “ideal” one described in the patent under scrutiny. Thorough consideration of all possible alternatives to the same idea and appropriate protection could reduce number and costs of such law suits.

Another reason to consider the alternatives to the initial idea is as follows: when entrepreneur knows all the alternatives, it is easier to select ones the most suitable for immediate implementation. Moreover, when competition decides to “kill” the innovative business, knowledge of multiple alternatives provides for fast shift to the new market niche or even new market.

What Should Be Multiplied

One can reveal all the alternative applications to the innovation, while keeping the idea of this innovation intact, by replacing the “elements” of innovation with their feasible alternatives and combining these new elements into the alternative “concepts of innovation.” Then, potential uses for each of these alternatives should be considered. This is the essence of the method.

Sounds simple, doesn't it? But, in reality, it is not as simple. Innovation is typically represented by description, either in legal form of patent or in freeform text; by drawings or sketches; or even by actual innovative product. However, it is difficult to decide which elements of these representations should be replaced with their alternatives. Even more difficult it is to decide which alternatives should be considered.

The most generally applicable principles of deciding which elements of innovation should be replaced with alternatives could be revealed only from point of view of the general purpose of any innovation, any improvement. Richard Koch³² suggests the following consideration:

“In evolutionary terms, markets, firms, technologies, brands, and individuals who gain experience at above-average rates are actually speeding up the evolutionary process. They are packing in more generations in a shorter time. Each generational change offers scope for improvement. Yet improvement only actually occurs if there is adaptive variation; that is, if each succeeding generation or version (of markets, firms, teams) produces something that customers like better, by doing something different that enables the market or firm to deliver better value – and to deliver improvement at a faster and faster rate.”

Hence, innovation becomes the real improvement only if it is adapted by its potential customers. Such adaptation happens only if innovative product or service provides customer with desired outcome, i.e. improved result of customer's activity. This understanding of successful innovation is considered in detail by Anthony Ulwick.³³ He writes,

“The thinking behind outcome-driven innovation is analogous to the Six Sigma initiatives that companies use to improve their internal business process: for every process, there is a set of metrics that can be used to determine whether it has been successfully executed. With the right metrics in hand, managers can establish programs that, over time, will control process variability and ensure perfect execution. In a similar fashion, for every job customers are trying to get done, there is a set of metrics that can be used to determine how well that job is being executed when using a specific product. If a job is executed well according to a customer's individual measures of performance, the customer will consider the job done perfectly and the product will be well perceived.

“When focused on innovation, companies need to collect metrics that relate to the job or the process that the *customer* is trying to get done, not an internal process that the company needs to accomplish. And these metrics *must* be defined by the customer, not by the people within the company. Managers need to engage customers in a conversation that is designed to extract the customers' desired outcomes... Trained interviewers can extract from customers their desired outcomes. The captured outcomes collectively

represent the set of performance measures that define the successful execution of a particular job or process. This point has important implications: if a company knows how its customers value a product’s ability to help them get a particular job done, then any proposed product idea (concept or design) can be evaluated against those measures.”

Hence, the first important component for universal consideration of any innovation is its outcome, i.e. improved result of customer’s activity.

The second important component is the core of improvement: the change in customer’s activity that provides for this outcome. Sometimes it is a different way of using the product, sometimes it is a change in product operating.

These two components could be easily found in any innovation, if innovation is considered and modeled as a process of customer’s activity improved by innovative product or service. As we know, the process can be efficiently presented by either functional model (logical sequence of actions constituting the process) or flowchart (sequence of intermediate events observable during the process). For purposes of Idea Multiplication approach, we are going to combine both these types of process model into the “Comprehensive Model”:

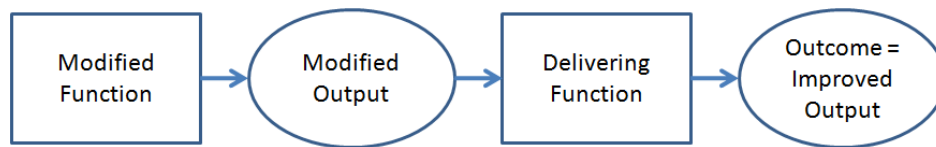


Fig. 8. Comprehensive Model of Situation

In this model:

Outcome (or Improved Output) is the result of customer’s activity improved by innovation in desirable way to desired extent. Outcome can be considered as a combination of Output and Improvement;

Delivering Function is the function directly producing the Improved Output;

Modified Output is an intermediate result of customer’s activity or product’s operation that has been changed by innovation and thus contributes to improvement of Outcome;

Modified Function is an intermediate customer’s action or product’s operation that has been changed by innovation and directly produces the Modified Output.

A set “Function-Output” in Comprehensive Model could be presented as the following “Physical Model”:

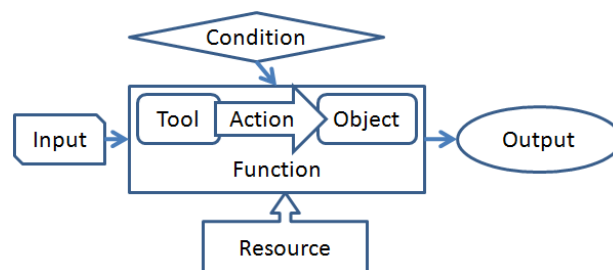


Fig. 9. “Physical” Model of Event

This model describes “how the action happens,” i.e. how the output is produced. It involves three main components, i.e. “Tool,” “Action” and “Object,” and four additional components, “Input,” “Condition,” “Resource” and “Output.”

The Physical Model could be described in the following way:

Tool performs an Action upon an Object so that it changes an initial state of Object (“Input”) into some new state (“Output”). This event happens under some specific Conditions that promote the appropriate Action. This event also utilizes and consumes some specific Resources.

This model, as one could see, looks similar to the Su-Field Model. The main distinction is, the Physical Model overtly represents all the elements that are usually “assumed by default” in Su-Field Model.

Hence, the Physical Model shows us what elements of innovation should be, for purposes of Idea Multiplication approach, replaced with their alternatives. The following alternatives to the different elements should be considered (for details, see Appendix 1):

- Direct Alternatives;
- Opposite Alternatives;
- Status-Quo Alternatives;
- Single Alternatives;
- Multi-step Alternatives; and
- Continuous Alternatives.

Basic Algorithm of Idea Multiplication

The basic sequence of actions you should take to multiply your ideas is as follows:

1. Describe the innovation in form of Comprehensive Model:
 - a. What result of customer’s activity (Outcome) is improved by innovation;
 - b. What function directly produces this result;
 - c. What intermediate result (Modified Output) of customer’s activity or product’s operation has been modified by innovation, and thus influences the improvement of Outcome; and
 - d. What function directly produces the Modified Output.
2. Describe each pair “Function-Output” in form of Physical Model;
3. Define each component of every Physical Model;
4. Apply Multiplication Rules to each component of every Physical Model; and
5. Combine all alternatives into new Concepts of Innovation.

Remember that looking for alternatives to different components might advise you the similar ideas, although considered from different viewpoints. Even if a new idea looks exactly like an old idea already generated before, document it. At this moment of work, don’t worry if alternative idea is the best to do the job – you will take care of that later, while combining the ideas into the Concept. First, generate and document as many alternative ideas as possible to every aspect of initial idea.

Summary of Chapter 2

Analysis of evolution of innovative business revealed an important stage overlooked by researchers: inevitable competitive attacks taken by stronger companies that immediately follow the first substantial commercial success of innovation. Inevitability of competitive attacks is caused by the fact that competitive blows are the direct consequence of commercial success of innovative business. On the other hand, the strength of competitive blows at this stage is disproportional to the size of this success.

This stage is especially dangerous to the innovative businesses because it is accompanied with occurrence and aggravation of contradictions that hinder the innovative businesses' ability to successfully counteract to the deadly competitive attacks. These contradictions exist only in minds of entrepreneurs. They are brought to life by widely accepted beliefs and assumptions on "unwritten rules" of "fair competition." It is difficult to see that these unwritten rules always create the winning conditions for stronger competitor and losing conditions for weaker competitor. Since any innovative business is initially in the weak position regardless to the size of company, it seemingly cannot win this fight. This is the root cause of contradictions typical for this stage of evolution of innovative business.

The complicated, multifaceted nature of contradictions under consideration calls for development of new approach to analyzing and addressing these contradictions. This method has been developed and tested. It is based on revealing and inverting the assumptions that cause occurrence and aggravation of these contradictions.

The complex relationships between typical contradictions that arise at this stage of business evolution render the simultaneous analysis and addressing of these contradictions practically impossible. Only conditional separation of these relationships provides for opportunity to resolve each contradiction individually. Later, these relationships should be reestablished to combine the solutions (strategies) into the integral strategic approach.

The essence of strategic solution of these contradictions is avoiding the competitive fight, while continuously expanding the business and its customer base. Implementation of this solution inevitably involves conquering the new markets. Since there is no time to "reinvent" the innovation in the heat of competitive combat, the entrepreneurs need an efficient and fast tool to diversify the innovation. This tool, Idea Multiplication approach, is based on patterns of evolution of innovations and allows the systematic search for new markets and market niches for company's core innovations. This method has been successfully tested in multiple real-world projects.

Chapter 3. Development of Winning Strategies for Inherently Weak Innovative Businesses

This chapter describes the results of applying the new tools for resolution of system of contradictions; these results are presented in the form of system of business strategies aimed at competitive victory.

First of all, author formulated the strategic goal: business should survive and continue developing and growing despite the competitive blows. All actions that aren't targeted to achievement of this strategic goal are inexcusable waste of limited resources, efforts and time.

The unique method of resolving the aggravated contradictions that inverts the assumptions and beliefs provided for discovery of conditions under which any competitive blow doesn't cause any harm to the company, or causes the minimum harm.

Clear understanding of these conditions provided for development of 12 business strategies targeting at achievement of the strategic goal. These strategies should be implemented immediately as soon as an innovation is created. Only preparation ahead of time provides the company with opportunity to avoid any competitive blow with minimum efforts and losses, and continue developing the business. Author step-by-step demonstrates how consistent, persistent and timely implementation of these strategies provides for sustainable movement toward the strategic goal.

Discovery and systematization of relationships between contradictions allows integrating the strategies into the unified strategic approach.

The method of systematic search for new markets and market niches for innovation produces clear recommendations on introduction of innovation to the market and steady expansion of customer base.

Since widely accepted assumptions and beliefs are pretty firm in any community, including the community of entrepreneurs and managers, they would inevitably produce objections and obstacles to implementation of suggested strategies. These internal obstacles are as dangerous to the company as external competitive blows are. Taking this into account, author has developed methodological recommendations on timely revealing and overcoming these typical objections and obstacles.

Use of suggested strategies and recommendations increases chances to innovative company survival and provides for successful introduction of innovation to multiple markets and market niches.

Important Stage in Business Evolution

As TRIZ expert, I pay the major attention to the situations that involve the paradigm shift, the inherent contradiction – and, subsequently, seek for successful solutions to these contradictions. In this search for paradigm shifts in evolution of business, I've unexpectedly discovered such situation where nobody yet saw it. In course of my networking with multiple entrepreneurs, I carefully listened to their stories – and step-by-step the strange picture emerged from puzzle of seemingly different narratives. The picture looked like that:

It takes a long time for business to straighten everything up so that customers become convinced in superior benefits of innovative product, and start buying it. Finally, the company's sales skyrockets, and expansion of manufacturing becomes "the must." Finally, the scarcity of everything, especially scarcity of money, seems like a nightmare that is now lost forever in the past. Finally, the company leaders can relax from everyday over-stress of "entrepreneurial adventure."

And then – exactly at this ecstatic moment of "achievement and accomplishment," – something strange and unexpected happens. Large company X who just a year ago declined offer to acquire the company brings to the market an exact copycat of company's product – at lower price. Another large company Y files patent lawsuit against the company: "It looks like you infringed our top-secret patents that we cannot disclose." At the same time, the "consumer protection agency" files another lawsuit claiming that company's product is dangerous to the consumers; and some signs suggest that the large company Z is sponsoring this attack. Several newspapers and TV channels start publicizing some "insider" scandalous information about company, its leaders and its products. Somebody discovers long forgotten scientific research "proving" that an approach used in the company's product has long-term harmful effect on consumers' health and well being. And so on, and so on.

In one day, the company whose existence just two days ago was unnoticed by even its neighbors, unexpectedly becomes in the focus of everybody's attention. And this attention, strangely, is, without any exclusion, hostile and unfriendly. Fight with this hostility costs to the company more and more – until, at some moment, company simply cannot survive anymore, and goes out of business...

Analysis showed that all these stories have the same common denominator. The same business phenomenon was the root cause of wide variety of stories about this unexpected course of events. This phenomenon was the paradigm shift that accompanies the first commercial success.

Before the first commercial success, the company does not have any external competition. Other competitors simply don't care what this company is doing, as long as it does not "steal" their customers, and thus does not compete for the same dollars in customers' wallets. At the first stage of company evolution, its main enemy is rather within the company. Every decision, every effort, every small change in relationships between people and functional groups becomes the foundation for future products, processes, structures, relationships,

attitudes and ways to conduct business. Every small conflict becomes the foundation for future “internal wars.” As O. Henry wrote,³⁴ “the only way to break up a trust is from the inside.” The reason is simple: any entrepreneurship, especially innovative one, attracts people with inflated ambitions, and these ambitions usually clash, because the resources for realization of ambitious plans are severely limited. Hence, people inside the company are competing with each other for these limited resources. But where the competition for limited resource begins, the contradiction immediately arises and becomes more and more intense, and thus more and more unsolvable.

If company despite all these clashes of ambitions survives and manages to deliver a really innovative, proper product to the proper market at the proper time, the customers start buying this product. Company gets its first commercial success - but, at the same time, it becomes an aggressor in the marketplace, because it “steals” customers from other companies. As long as this “steal” is negligible, nobody still care; but as soon as erosion of customer base of other companies becomes visible, these companies start defending their domains. At this moment, the companies already entrenched in the market turn from “just other companies in the industry” to “merciless competitors.” At this moment, the innovative start-up company experiences its first “phase transition” from stage when there was no competition to the stage where there are many hostile competitors.

From point of view of running the business, this transition represents the paradigm shift: focus of company leadership should immediately switch from “internal problems and challenges” to “external problems and challenges.” The main efforts of company leaders should be aimed at defending the very existence of business from aggressive competition. The most important decisions should be made on how to answer to competitive attacks.

This paradigm shift is inevitable; however, most of entrepreneurs meet it unprepared. As a result, their responses to new challenges are rather non-systematic. The best response is “mirroring,” “an eye for an eye.” However, the competitors expect exactly this kind of response; they have sufficient resources to conduct such a war, while small company does not have this luxury. Finally, the innovative enterprise wastes all its scarce resources in this war, and goes out of business. Exactly as it was intended by competition.

The fact that this paradigm shift is inevitable does not mean that no company can survive it. Quite opposite. Inevitability of this first paradigm shift in the business evolution, from TRIZ point of view, means that the innovative entrepreneur can prepare to this event ahead of time, and address its challenges more efficiently than if this paradigm shift happened unexpectedly. Moreover, the experience of those who survived this paradigm shift and prospered thereafter could be analyzed, learned, and used consciously. This is the key point of this thesis.

Basic Principles for Development of Winning Business Strategies

The strategies are never born in vacuum. They are always built on some basic principles that promise to resolve the key strategic problem: how to win maximum with minimum losses. In the particular case considered in this thesis, the basic principles should address the key business challenge: how the company with no resources can win competition against the “industry superpowers.” This challenge seems unsolvable for the following reasons:

1. The idea of fighting industry superpowers while possessing no resource seems frightening due to the widespread belief that any fight requires comparable amount of resources;
2. All the solutions suggested by mutually accepted business wisdom seemingly lead to the business death;
3. All “business gurus” send contradictive message: they cannot recommend anything but following the “business wisdom,” but then they tell that this is exactly the way to lose the business in course of competitive battle.

Usually, it means that the business world faces the contradiction – or even bunch of contradictions. Hence, the basic principles we are looking for should address these contradictions in the business-like way. “Business-like way” means that solutions to these contradictions should provide the innovative company with competitive edge. In the other words, these solutions should give this company a substantial advantage and put competitors at a disadvantage. These basic principles are simple:

1. Reveal and resolve the contradictions, “Conventional competitive approaches are widely accepted, but don’t work anymore”;
2. Develop the counterintuitive solutions to these contradictions;
3. Select the solutions that exploit the competitors’ psychological inertia (rules, beliefs, policies), and put the competition at the maximum disadvantage.

These basic principles of strategy development are really immutable. The strategies, however, aren’t.

Reveal and Resolve the Business Contradiction

The business contradictions, in the most general way, sound like this:

The conventional approach to the issue-at-hand should be used, because it is widely accepted among business people...

...but this conventional approach to the issue-at-hand should not be used, because it puts my business in position of serious disadvantage.

This contradiction does not mean that the conventional approach is totally wrong. Actually, it might be very useful and efficient to other businesses and under different conditions. However, in my particular case, under the particular conditions my business is experiencing “here and now,” use of this approach leads to the disadvantageous situation, to the substantial losses, or even to the company’s death.

For example, the conventionally wise “unwritten rules of competition” such as “an eye for an eye” or “competitive response in kind” usually silently assume that the stronger competitor wins. The reason for that is simple: one should spend a lot of resources if responding to

resource-consuming competitive attack “in kind”; those who possess and can spend more resources, win.

However, what to do if the company does not have enough resources to respond in kind? What to do if responding in kind drains all the resources needed to run and grow the business? In this case, the conventional wisdom says, “Give the business up.” It is a nice, “logical” suggestion to a stranger, but what if your own business is at stake? What if the new, small business with scarce resources unwillingly “woke up” the huge competitor?

Then, only the non-conventional approaches can help the small company not only survive, but also grow its business. This is the only way acceptable to the strategically-minded business leader who doesn’t consider “giving up” as an option.

To resolve this contradiction, it is necessary to find out why the conventional approach helpful under different conditions isn’t helpful in this particular situation. Then, the contradiction should be thoroughly analyzed and resolved.

For instance, the most difficult problem caused by simple design of an innovative product could be described as follows:

The product design should be simple, because simple design provides for simple and inexpensive launch and production...

...but product design shouldn’t be simple, because competitors with huge manufacturing capacities and large sales force easily copycat the idea and “steal” the market.

Conventional approach says, “Make the product as simple as possible: simple product is easy to launch and produce, thus cost of starting the business is minimized.” However, if this simple product is the only thing the company can do, then as soon as competition copycats the idea, the innovative company has no chance for success...

Develop the Counterintuitive Solutions

It seems simple to find a trade-off to the “contradictory requirements”: a little bit of one thing, a little bit of another. In this case, a little bit of conventional approach, a little bit of “responding” to harm. Unfortunately, it doesn’t work. Or, maybe, fortunately? Because, if it works, the competitors may expect the “victim” taking this way of troubleshooting. The conventional approach, with all “a little bit”-type deviations, is a trap, and inexperienced entrepreneurs usually follow this predetermined way. The only thing the large sharks should do is to place these traps on the path of entrepreneur. The advisers of “conventional wisdom” finish this job.

Hence, to avoid this trap, the entrepreneur should change his route. He should make a move that competitors don’t expect, the counterintuitive move.

The simplest way to find a counterintuitive idea is “double inversion,” i.e. doing something opposite to what the competition expects (first inversion) to achieve the same objective (second inversion, because simply doing something opposite usually leads to the opposite result, too). [дать ссылку на одну из моих книг – может даже, привести главу с примерами?] While addressing the contradiction, one inverts assumptions that created this

contradiction (first inversion) and thus accomplishes the same goal (second inversion) without any associated problem.

So, the strategically-minded entrepreneur should not be afraid of counterintuitive solutions. Quite opposite, this is what he should look for.

There are multiple solutions to the contradiction caused by simplicity of product design. Some of them are intuitive:

1. Proceed with simple design, and hope that competitors won't pay attention;
2. Proceed with simple design, but make production complicated;
3. Make the design complicated, so that it is difficult to copy.

As one can see, none of these solutions really resolve the contradiction. "Hopes" never realize, complicated manufacturing process is very expensive and unreliable, and complicated design is both difficult (costly) to produce.

There are also several counterintuitive solutions, such as:

1. Make product design looking complicated, but easy in production;
2. Design multiple products into one, e.g. several next generations, and then disable future features by removing some components that are easy-to-add later;
3. Instead of complete product, produce the "upgrade" to the product of competitors.

All these solutions are not what the competitors expect. But which of them are the most reasonable to implement?

Select Solutions That Exploit Competitors' Psychological Inertia

Why solutions to the contradictions look so counterintuitive? Because they suggest doing something opposite to what should be done according to the mutual belief of "experts."

Every action, according to Newton, triggers the counteraction. When smart entrepreneur makes something counterintuitive, he should expect the appropriate response from competitors. Since entrepreneur's action is unexpected, the competitors are taken by surprise. They don't expect that entrepreneur can accomplish something by doing the "stupid things," so one might expect that they reaction would be rather traditional, with small correction caused by entrepreneur's "stupidity."

Now, the strategically minded entrepreneur should implement the solution that would trigger really stupid reaction on competitors' side.

For instance, let's consider the counterintuitive solutions to the contradiction caused by simplicity of product design.

All these solutions inevitably trigger the same competitive reaction: competitors copycat the product that already demonstrated its success.

The first solution, "complex design – simple manufacturing," is counterintuitive; however, good manufacturing engineers can discover the simple ways to produce this complex product, because they are looking for simple ways to produce.

The third solution, "upgrade," is also counterintuitive, but easy to understand: engineers anyway are thinking about product improvements, so it is easy to them to understand the concept of upgrade.

So, these two solutions use counterintuitive ideas that are difficult to generate, but once the idea is created, the idea stops being counterintuitive.

The second solution, however, is so counterintuitive that it triggers really stupid reaction. Competitors are looking for simple solutions and hardly think several generations or uses ahead. Their psychological inertia suggests them “one product – one generation – one purpose” attitude. As a result, everything that represents disabled capabilities and features in the innovative product is taken by them as “unnecessary” or even “stupid” complications. There is a fat chance that competitors’ engineers decide to simplify the “overweight” product to its bare functionality. But this is the trap!

When innovative company needs to shift to the next generation or new purpose of product, it needs just add the previously removed components. This could be done via simple correction of manufacturing process. When competitors decide to copycat the new product, they have to launch new product from the scratch. This launch incurs significant expense, effort and time.

Hence, the second solution is much better: its idea is not only counterintuitive to generate, it is also counterintuitive to copy...

* * *

So, the strategically-minded entrepreneur can design new strategies and select the best ones if he follows simple basic principles:

1. Reveal and resolve the contradictions, “conventional competitive approaches are widely accepted, but don’t work anymore”;
2. Develop the counterintuitive solutions to these contradictions;
3. Select the solutions that exploit the competitors’ psychological inertia (rules, beliefs, policies), and put the competition at the maximum disadvantage.

These basic principles of strategy development always provide the smart entrepreneur with “unfair competitive advantage.” Hence, they are immutable. Strategies, on the other hand, are just “products” of applying these basic principles to the situation-at-hand.

Counterintuitive: Is it Good or Bad?

In defensive tactics it is not a matter of matching your strength and power against the strength and power of your opponent but, rather, the direction of all your strength and power toward your opponent's weakness.

- *FBI Training Manual*

The word “counterintuitive” carries an aura of negative notion, probably due to its “counter” portion. As one of my bosses told me once, “If this is counterintuitive, then it would never be implemented, period.” Yeah, sure... The idea of a horseless cart couldn’t be anything but counterintuitive after 5,000 years of horse-powered transportation, could it?

So, every innovative entrepreneur needs to think – ahead of time – if there is any reason to rely on anything that could be labeled “counterintuitive.” Are the counterintuitive strategies and concepts trustworthy? How can one trust anything the experts call “stupid,” “foolish” and “thing that would never work”? Should one bet the very fate of his business on something nobody else believes in?

What Does “Counterintuitive” Mean?

If some strategy, concept, or notion is labeled “counterintuitive,” it means that people wouldn’t come to this idea “naturally” when facing similar challenges or problems. It means that in the past, people successfully solved the very same problems with “intuitive” ideas and those who tried such “counterintuitive” ideas usually failed.

If history evolved along the straight line, this experience would be always true. However, History loves swinging from one paradigm to another, from one truth to another. The paradigm shift occurs when the old paradigm creates more problems than solutions. Shift to the new paradigm isn’t somebody’s caprice, rather the forced means. We call it “the paradigm SHIFT” because the new paradigm usually negates the old one. What was “counterintuitive,” becomes “intuitive” under the new paradigm’s rule.

Hence, what is “counterintuitive” today is more often than not the “tomorrow’s truth.”

Also we call it “SHIFT” because it incurs painful, tectonic changes in people’s beliefs and behaviors. Those who accepted the “counterintuitive” approaches ahead of the crowd take all the pain of “arrows in the back.” But those who survive become the leaders of new world. Those who resist the “counterintuitive” approaches take the pleasure of being “wise,” but they nonetheless lose as paradigm shift unfolds. If you ask, “Whose pain is bigger?” the proper response would be, “Does it matter? History remembers only big winners, and forgets their pains.”

Counterintuitive Is Bad

From the majority point of view, “counterintuitive” is bad: it simply contradicts the daily experience of many people, their beliefs and intuition. “Counterintuitive” stuff negates experiences, makes experts look bad, and suggests something with unknown, unproven consequences. Hence, “counterintuitive” is at least risky.

“Counterintuitive” decisions usually work against decision-makers’ immediate interests. Decision-makers prefer doing “intuitive” things, allocate resources where they are expected to produce the maximum positive effect, and avoid unpredictable situations.

It means that “counterintuitive” strategies are bad to your company and yourself: it is practically impossible to “sell” them inside your own company, to transform them into the decision-makers’ mindset, and thus to implement them. If an entrepreneur doesn’t believe he can sell it to his peers, subordinates and superiors, if he doesn’t have enough patience to lead them into believing in these strategies, if he doesn’t have enough energy to control the consequences of all decisions at all levels of his company and promptly correct them, then he shouldn’t even try. The only “achievement” will be the permanent label of “business lunatic.” It will be the very end of his business career.

Counterintuitive Is Good

As one will see throughout this thesis, the “counterintuitive” strategies suggest the only way to win in an otherwise hopeless business war. Only counterintuitive strategies can produce results high above the mediocre. The business dilemmas described here are the ones every business inevitably faces – as soon as this business achieves its first successes. The

“intuitive,” “conventional” decision-making is exactly the culprit of these dilemmas being “unsolvable.” Only “counterintuitive” strategies provide realistic, winning solutions to these dilemmas. Hence, “counterintuitive” is good, isn’t it?

These strategies are “counterintuitive” to the company’s competition, too! Competitor’s experts, while watching what an innovative company is doing, draw the false conclusion that this company is “stupid,” “foolish” and “full of idiots.” They don’t even think through the consequences of such “wrongdoing.” They suggest the “intuitive,” “conventional” actions against innovative company – exactly the trap the “counterintuitive” strategies are building on their way. Hence, the “counterintuitive” strategy is exactly what the strategically-minded entrepreneur needs to lead the competitors astray and win against competitor’s superior forces. From this standpoint, the “counterintuitive” is very good, isn’t it?

Catch Me If You Can

Against those skilled in attack, an enemy does not know where to defend; against the experts in defense, the enemy does not know where to attack.

- Sun Tzu

Brief Overview of Strategy

Development of integral strategic approach aimed at winning in inherently hopeless competitive situation starts with revealing the core strategy. This strategy should provide the weak innovative business with ability to grow its customer base and sales of its innovation while its stronger competitors do everything they can to exterminate this business.

This strategy consists of three approaches:

- (1) Prepare the new grounds, e.g. next generation products, new markets, new differentiations, etc., ahead of time;
- (2) Accumulate the big success from multiple successes small enough to avoid competitive attention; and
- (3) Under competitive attack, run to the new grounds, and never fight back.

This strategy efficiently resolves the otherwise “unsolvable” dilemma of competition:

Fighting by the rule “an eye for an eye” seems intuitively right...

...but such rule always favors the stronger, larger competitor, and leaves to the smaller, weaker competitor no chance to win.

Large competitor simply cannot hit the small company that follows this strategy called, “Catch Me If You Can.” This strategy suggests waging a guerrilla warfare against the large regular “army” occupying the territory (in this case, dominating the market or market niche). No large “army” has a chance to win against small, irregular guerrilla units, because they fight by different rules.

Implementation of this strategy is counterintuitive, because it fights simplistic, short-term understanding of competitive warfare, and creates several dilemmas that can be used as the reasons against this strategy. However, these dilemmas are successfully addressed by other strategies comprising the integral strategic approach.

For details on development and further analysis of this strategy, see Appendix 2.

Black Case Study: Borland vs. Microsoft

Borland was very famous among the programmers of 70’s – 80’s: its main product was compilers for widely adopted programming languages such as Turbo-C, C++, and Pascal. Borland-developed languages were efficient and consistent, their compilers worked fast, their debuggers were intuitive and to-the-point. When Microsoft commercialized its compiler for C, the professional programmers didn’t even take it seriously: it was full of bugs and very slow. Microsoft’s Visual Basic was a laughing stock for serious programmers, because Basic was the most disrespected programming language. However... in mid-90’s, in the midst of dot-com bubble, when “programmer” became the most needed profession, simple Microsoft compilers became the weapon of choice to teach quickly the army of newcomers. Programmers who mastered Borland compilers were way too expensive for thousands of

software companies. Borland's high quality became rather a burden in the brave new world where "fast-to-market" was the mantra of investors and CEO's. Borland tried to catch up with Microsoft with "visual" approach, but it was too late: Microsoft gained momentum, its Visual Basic continuously improved while staying simple. When Microsoft compilers "occupied" the vast majority of programmers' computers, Borland had to give up...

White Case Study: Microsoft "As a Standard"

Nothing would be done at all if a man waited until he could do it so well that no one could find fault with it.

- Cardinal Newman

Microsoft started with the most "invisible," obscure portion of personal computers: operational system.

An operational system enables the software packages. It works "behind the scene," while the software packages are the well-known stars, celebrities. Who knows the names of make-up men who enabled Arnold Schwarzenegger or Sylvester Stallone looking so gorgeous on the cinema screens? Operational system plays exactly the same important, but invisible role in the personal computers.

If Microsoft would stay in this obscure market niche, we, probably, would never hear about Bill Gates. However, Microsoft took a different path: it started steadily taking other roles in the PC "theater." In every such role, Microsoft initially was, probably, the worst performer – bugs, runtime errors, crashes of Microsoft software in practically every nationwide presentation became the "trademark." When high-quality oriented professional programmers were talking about Microsoft, one could hardly hear any word of respect, rather the opposite.

But step-by-step Microsoft "usurped" the key role in the software world. Now, the Microsoft developers decided which software packages will and which won't work properly with next version of operational system. Microsoft even decided which companies can or cannot run their software on the users' computers, as it was in the early stages of competition with Netscape.

Finally, the software companies filed multiple anti-monopoly lawsuits against Microsoft's key decision-making role on the software market. However, these lawsuits were won by Microsoft who managed to prove that this is not a "monopoly," rather "developing and keeping a standard" for all software developers.

Microsoft software products are characterized by the following common features:

1. Integration: Microsoft products, whichever different in purposes and ways to process data, relatively easily exchange their data;
2. User friendliness: Microsoft software products for non-programmers are intuitive, easy-to-use; their main features are "on the very surface," like "Send and Receive" button in the middle of toolbar of email software; and
3. Addressing the areas of most intense interest: MS Word that made everybody a good writer of documents; MS PowerPoint that made every manager an efficient presentation developer; MS Project that organized and integrated all activities in project planning and control; MS FrontPage that made everybody a web developer; MS Visual Basic that made everybody a programmer, etc.

Many companies tried to compete with Microsoft, but... nobody could "catch" it. The company grew in 33 years from a small start-up into the global super-giant that steadily

conquers and integrates more and more aspects of computing. Even if anybody can compete with Microsoft over the specific software, nobody can even get close to it in its overall integrated product platform:

“During the transition from MS-DOS to Windows, the success of Microsoft's product Microsoft Office allowed the company to gain ground on application-software competitors, such as WordPerfect and Lotus 1-2-3. According to The Register, Novell, an owner of WordPerfect for a time, alleged that Microsoft used its inside knowledge of the DOS and Windows kernels and of undocumented Application Programming Interface features to make Office perform better than its competitors. Eventually, Microsoft Office became the dominant business suite, with a market share far exceeding that of its competitors.”³⁵

Fat Product – Lean Process

Softness triumphs over hardness, feebleness over strength. What is more malleable is always superior over that which is immovable. This is the principle of controlling things by going along with them, of mastery through adaptation.

- Lao-tsu

Brief Overview of Strategy

Here, we consider the first strategy supporting the “Catch Me If You Can” strategic approach, “Fat Product – Lean Process.” This strategy combines three approaches:

1. Develop the next generation products, new markets, new differentiations, etc., ahead of time;
2. Hide the future features from competition via removal of some key elements that later can be easily added; and
3. Under competitive attack, run to the next-generation product, and don't get involved in the pricing war or other competitive battles.

This strategy efficiently resolves the otherwise “unsolvable” dilemma:

The company should address multiple diverse customer bases in order to realize the strategy...

...but company cannot launch multiple products and marketing campaigns.

Implementation of this strategy is counterintuitive, because it fights simplistic, short-term understanding of economics of competitive warfare. Although this strategy prepares company to successfully avoid involvement in the pricing war at a significant disadvantage, this long-term result isn't as “visible” as short-term financial “losses” due to higher costs of product development and product itself. This strategy should be followed persistently; otherwise, it loses its advantages, while its disadvantages hurt the company.

For details of development of this strategy, see Appendix 3.

Black Case Study: Netscape vs. Microsoft

When one of the business leaders of Netscape couldn't resist the temptation to inform the world that Internet protocol can replace the computer operational system and his people know how to do it, he sealed the horrible fate of his business. Microsoft, the market leader in operational systems, took the threat to its business seriously. In the matter of weeks, the Internet department of Microsoft grew from 8 people to 4,000, and development of Internet Explorer and Internet Outlook began. The first version, also far inferior to Netscape Navigator, was sold to the users...for free, as an integral component to Windows. Netscape, with \$49 price of its only product, Navigator, couldn't withstand this furious blow. Inability to quickly come up with something new and really different only accelerated the Netscape's fall.

White Case Study: Casio vs. Texas Instruments

I had heard this legend in the mid-1980s. Although not proven by any publication or in any other way, this legend sounds reasonable from technology standpoint. It also confirms with analysis of Casio business strategy and facts of its fierce competition against much larger Texas Instruments.

When several companies began commercializing the handheld calculators, TI purchased Casio's calculator and scanned its microchip. This calculator could add, subtract, divide and multiply. The conclusion was twofold:

- The “working” portion of microchip schematics is clear to experts; but
- There are multiple “dead ends,” i.e. multi-transistor chains that either go to nowhere, or come from nowhere.

The purpose of these “dead ends” was unclear; actually, there was no logical purpose for them. Experts concluded that these “dead ends” were kind of “booby-trap” for those who try to copycat the microchip, and simply “trimmed” them out. They copied, however, the “working” portion of schematics – and launched their “own” calculator.

At those times, launching the microchip was a tough project: it took several months to reduce the reject to the reasonable, financially sound level. It took TI about half a year to come up with “their” calculator.

Two weeks later, Casio added one more action, square root. Experts from TI scanned this microchip, and found out that:

- This is the same microchip as in previous version of calculator; and
- Couple “dead ends” are connected with laser beam-burnt “bridge,” thus creating the circuit that performs a new action.

Cost-reduction-oriented experts copied the “working” schematics of microchip. In six months the new calculator “hit the market.” In two more weeks, Casio... OK, you are right: one more action, same microchip, two dead ends connected with laser beam...

“Recognizing its competitors’ inability to introduce new products rapidly, Casio has adopted a strategy of accelerating and shortening product life cycles. No sooner had its 2mm-thick, card-size calculator been introduced than Casio started rapidly bringing down its price, thus discouraging its competitors from following with a similar product. Within a few months, Casio introduced another model, which emits musical notes as the numerical keys are touched.

“Casio... can afford to make its new products obsolete quickly. Its competitors, all organized vertically on the assumption of a one- or two-year life cycle for this type of product, are at severe disadvantage.”³⁶

The legend says, Casio used THE SAME MICROCHIP until the programmable calculators were introduced to the market. By that time, Casio already grew significantly and captured substantial market share and brand recognition.

Icebreaker

Brief Overview of Strategy

This chapter is devoted to the Icebreaker strategy consisting of the following activities:

- (1) Design the simple “upgrade” to the existing product; this “upgrade” turns the unsatisfactory existing product into the satisfactory one;
- (2) Design the “upgrade” so that it is “plug-and-play” compatible with products of the most popular brands;
- (3) Split the process of implementing the “upgrade” into two or more stages;
- (4) Implement the “first stage” that covertly prepares for flawless and quick implementation of the “upgrade”;
- (5) As soon as the “first stage” implementation gains momentum, start implementing the “upgrade.”

This strategy resolves the following dilemma:

The opportunity for innovation is great...

...but the innovation is so simple that “big guys” can easily copy it and steal the market.

Appendix 4 contains more detailed consideration of this strategy.

Black Case Study: Rice Dryer

Harvested rice should be cleaned from dust and husk and dried to remove excess of water. Drying should be gentle to avoid micro-cracks on grain surface. Rice is dried while falling down in ascending flow of hot air. This is the way every rice dryer works.

A Japanese company wanted to reduce noise produced by rice dryer’s exhaust, but didn’t want to increase cost and space occupied by machine. Structured innovative approach discovered the following concept:

Rice dryer’s exhaust air is still hot. Hence, it can be used for pre-heating the intake air and kerosene. Such utilization of waste heat promises 15% reduction of kerosene consumption. This saving justifies a new component, heat exchanger that transfers heat from exhaust air to intake air and kerosene. The heat exchanger, in its turn, is designed like a “silencer,” thus addressing the problem of noise.

Of course, the company could simply upgrade its current rice dryer, thus slightly increasing its share on the already overcrowded market until competitors could copycat the innovation. We, however, suggested a different solution: shift from manufacturing and selling the rice dryers toward manufacturing and selling the “upgrade,” i.e. heat exchanger / silencer that fits all types of rice dryers, thus creating the new market. This market was huge: the entire South-Eastern Asia region where every farmer is using rice dryer and is fighting for any cost reduction.

However, company was afraid to come up with so simple product that anybody could copycat it immediately, and rejected this suggestion...

White Case Study: Start Car On a Hill

The project on forecasting the future of parking brake system revealed that “parking brake is going to die,” because its main functions can be easier and better performed by other systems in the vehicle.

One of the functions of a parking brake is starting a car with manual transmission car on a hill. This operation is a complicated simultaneous act of releasing the brakes, engaging the clutch and accelerating the engine. This simultaneous act is balanced so that vehicle standing on the hill moves forward without sliding back. Operating three pedals with two feet simultaneously is difficult, so driver substitutes hand-controlled parking brake for foot-controlled main brakes.

To replace parking brake in this function with main brakes, one needs to find a way to operate three pedals with two feet. As soon as the problem was formulated this way, a simple solution was found. Out of the three pedals, one is pressed down (accelerator), while two (brake and clutch) should be released. This consideration suggests the idea of somehow connecting the brake and clutch pedals so that they could be moved together while the driver’s foot works with one of them.

Now, we should consider all other cases of using these pedals:

- While braking, driver should push both brake and clutch pedals; otherwise, the engine cuts out (this is a typical mistake of beginners or panicking drivers);
- While starting or shifting the gear, driver should operate clutch pedal independently, and shouldn’t engage brake pedal.

This analysis finalized the concept: we need to attach a bar to the brake pedal lever so that it engages clutch pedal lever when brake pedal is operated, but doesn’t interfere with independent operation of clutch pedal. With such a bar, the clutch pedal is pushed down every time the brake pedal is pushed. When the brake pedal is released, so is the clutch pedal. When the clutch pedal is operated, the brake pedal remains in place.

The market of vehicles with manual transmission is huge, especially outside the US. However, the “upgrade” is so simple that a small company has no chance to capture any significant market share before the larger competition simply copycats the product and “steals” the opportunity. Is there any chance to win this competition?

Analysis of the process of implementation of this “bar-over-the-pedal” showed the following: before installing this bar, one needs to match sensitivities of clutch and brakes. These sensitivities are usually adjustable, and mechanics know how to modify them, but nobody before even thought about matching these characteristics. It wasn’t necessary before, but now it is.

Now, we can define the “first implementation” stage as follows:

- Product: simple and convenient device allowing to accurately adjust brakes and clutch;
- Target customers: car mechanics, body shops;
- Latent feature: switch that allows accurately matching adjustments of brakes and clutch.

This device, to be more attractive to the target customers, should be more convenient and simplifying the job than any currently available equipment; it should also cost less than other similar equipment.

The “Icebreaker” plan was as follows:

- (1) Company A develops the adjusting device and licenses it to company B which is interested in retail sales and has customers in the market;
- (2) Company A develops the marketing materials for company B, and supports company B in launch of adjusting device;
- (3) Company B produces and distributes the adjusting device, especially focusing in areas where interest to the bar-over-the-pedal would be more intense;
- (4) Company B informs its customers about “latent switch” and how to use it;
- (5) Company A launches the bar-over-the-pedal;
- (6) Company A launches the marketing campaign and develops marketing materials for company B’s customers
- (7) Company A sells the bar-over-the-pedal through company B’s customers.

In this way, company A quickly captures the substantial market share. Its success synergistically promotes sales of company B, which, in its turn, further promotes sales of company A.

Emulation

Brief Overview of Strategy

This chapter discusses the “Emulation” strategy that combines the following three approaches:

- (1) Find out the competitor’s strengths that cannot be reproduced by a small company;
- (2) Discover the alternative ways to produce the same benefits; and
- (3) Under competitive attack, emulate the competitor’s strengths and exploit the small company’s strengths.

This strategy efficiently resolves the otherwise “unsolvable” dilemma:

The small company should provide the same benefits as large companies...

...but small company cannot afford the large-scale capabilities.

Implementation of this strategy is counterintuitive, because it fights simplistic, tradition-oriented understanding of competitive warfare. More details of this strategy one can find in Appendix 5.

Black Case Study: Wall-Mart vs. Local Stores

In 2004, I decided to apply my innovative expertise to the industry that has eluded the attention of my colleagues: the local grocery stores. I expected that they have “unsolvable” problems that structured innovation can successfully address. I limited my interest to local grocery stores in driving distance from my home, i.e. in Michigan, Ohio, Indiana and Illinois. Only four owners agreed to meet, others weren’t interested in innovations. I asked all four the same question, “What keeps you up at night?” and was really surprised when all four answered, “Wal-Mart and Costco: as soon as they opened stores in our vicinities, we started losing customers. Their competition is unfair, and we cannot beat them. This is our largest trouble.”

All four owners, however, found different reasons to decline my offer to facilitate them in resolving this problem: they had more urgent and important things to do. It was clear that they don’t trust anybody who says that this problem can be resolved.

Two years later, at the Future Trends Conference in Miami South Beach, FL, I met Peter C. Whybrow, M.D., the author of *American Mania: When More Is Not Enough*³⁷. This book “revitalized” my memory of the meetings with owners of local stores. Peter Whybrow wrote the following:

“...mass markets demand mega-companies, and while such corporations have improved the material standard of living for many people, their growth is crippling to local communities and economic micro-cultures... Wal-Mart, the American retail giant, offers a powerful example. When Sam Walton opened his first store in Rogers, Arkansas, in 1962, his advertising slogan was the same as it is now: ‘We sell for less.’ Walton’s special edge was that by mass purchasing he offered goods at prices lower than those that local variety and hardware stores needed to charge to stay in business. Forty years later

Wal-Mart is a \$200-billion-a-year enterprise accounting for over 6 percent of the retail spending in America (which in the year 2000 was approximately \$2.3 trillion). In its dominance over the domestic market, each day Wal-Mart sells approximately 474,000 pairs of shoes, 52,000 pairs of jeans, 68,000 bras, and 110,000 pairs of women's underpants, an astounding achievement that would have been impossible before information-age technology and the globalization of trade.

“Living with giants has broad social consequences. The service goal of Wal-Mart Stores is to ‘drive unnecessary costs out of business,’ and it achieves this by pushing its army of sixty-five-thousand suppliers to adopt lean practices. This has fostered a globalization of the production chain, where to meet the low wholesale prices Wal-Mart demands, many vendors subcontract with overseas agents running factories with unregulated, and sometimes highly questionable, working conditions. Similarly, Wal-Mart's domestic labor practices have come in for criticism. Fiercely opposed to union organization, Wal-Mart is the largest private employer in the United States, with more than 1 million full-time and part-time employees. Its down-home folksiness disguises the chain's subversion of small-town society and the dramatic changes in local employment that occur whenever it enters a community. In smaller towns some 25 percent of local retail shops commonly disappear when a new Wal-Mart opens nearby. This weakens the diversity and viability of the local market economy and of the community itself.

“...The worst poverty in America is not in the inner cities but in the countryside – in Texas, Mississippi, Kentucky, Arkansas, and places like California's Central valley... The farming communities... slipping away in New England are already dead in some of these areas – areas where the agricultural industry is now so large that no small farmer can sustain himself. Small businesses rapidly follow. Should a Wal-Mart be built within driving distance, the local market economy essentially disappears. In rural America the social fabric is tearing.”

These very emotional words showed me that the drama of local businesses conceals the aggravated dilemma, and nobody yet tried to resolve it. Entrepreneurs, with praiseworthy zeal, work harder and harder – and continue losing their businesses to this “monster.”

White Case Study: Local Stores vs. Wal-Mart

I decided to uncover and address this dilemma. Now, it was my personal challenge to prove that my experience could be helpful to the local store owners.

First of all, I needed to liberate myself from emotions, which was pretty difficult after reading the Peter Whybrow's emotionally-charged book. I told myself, “No, Wal-Mart is NOT an evil. Wal-Mart's employees don't use Tommy-Guns to shoot the local business owners; they don't drive the customers away from the local stores to Wal-Mart at gun point. More realistic picture is much simpler: Wal-Mart offers something that local stores cannot offer, but their customers like a lot. As a result, customers VOLUNTARILY decide that buying at Wal-Mart is better than buying at the local stores.”

Brief research produced the following results:

1. The local stores have long history with local communities; during this long time, they managed to develop the personal relationships with people of their communities.
2. The local stores are small, and their customer base is small, too; the local stores use this condition to develop personalized attitude and service to their loyal customers.
3. Wal-Mart is big; it has a huge network of suppliers, it consumes a huge amount of supplies and provides for fast turn of inventories. As a result, they offer lower prices than the local stores can.
4. Wal-Mart's formula of profitability is different than that of local stores or department stores. As Christensen describes³⁸,

“Low-end disruption has occurred several times in retailing. For example, full-service department stores had a business model that enabled them to turn inventories three times per year. They needed to earn 40 percent gross margins to make money within their cost structure. They therefore earned 40 percent three times each year, for a 120 percent annual return on capital invested in inventory (ROCII). In the 1960s, discount retailers such as Wal-Mart and Kmart attacked the low end of the department stores' market – nationally branded hard goods such as paint, hardware, kitchen utensils, toys, and sporting goods – that were so familiar in use that they could sell themselves. Customers in this tier of the market were overserved by department stores, in that they did not need well-trained floor salespeople to help them get what they needed. The discounters' business model enabled them to make money at gross margins of about 23 percent, on average. Their stocking policies and operating processes enabled them to turn inventories more than five times annually, so that they also earned about 120 percent annual ROCII. The discounters did not accept lower levels of profitability – their business model simply earned acceptable profit through a different formula.”

5. Wal-Mart usually occupies significant territory, and offers the widest variety of goods; as a result, Wal-Mart serves as “one-stop shopping place.”

Now, the story of competition in this market sounds different than Peter Whybrow tells:

Wal-Mart offers low prices at a “one-stop-shopping” point. Since low prices and convenience are important for people, they prefer Wal-Mart and buy there. As a result, the customers are satisfied, and Wal-Mart is profitable.

On the other hand, a local store serves the community for a long time, and provides the personalized service; as a result, a local store has good relationships with its community.

Since the local area has limited number of customers, and customers prefer Wal-Mart, the local store loses customers. The local store tries to counteract this loss with emphasizing its good relationships, but local store cannot copy Wal-Mart's strength. As a result, the local store closes; all its customers become Wal-Mart's customers, and Wal-Mart becomes even more profitable.

Here, the words “local store cannot copy the Wal-Mart's strength” are the assumption, while the rest of this story is mere facts. I inverted this assumption, and found out that a local store can compete with Wal-Mart without losing profits and inherited personal “face” if it could:

- Provide its customers with “one-stop shopping” and low prices;

- Use the limited store area, don't increase inventory, and don't reduce prices of groceries; and
- Continue providing its customers with intimacy and home-like service and interior

What are the alternative ways to provide consumers with “one-stop shopping”? For example, Internet shopping. Of course, this approach is usually discarded for multiple reasons.

- First of all, many consumers, especially the elder ones, are still afraid of Internet shopping, because their financial information can be stolen. Can a local store solve this problem for them? Of course, it can – by serving as an intermediary between consumers and PayPal or any other Internet payment system. Customers pay the local store for their purchases made at Internet terminals installed in the local grocery store, and store pays for these purchases to the Internet sellers. Purchased goods can be delivered either directly to the consumers, or to the store where consumers can pick them up, whichever is more convenient for them. Internet prices are usually lower than prices at Wal-Mart, and the local store could charge customers additional modest fee for security and convenience.
- Many consumers, especially the elder ones, are lost in the ocean of the Internet, and aren't experienced enough in finding the best deal. Can a local store solve this problem for them? Of course, it can – by involving the local teenagers, who are expert navigators in the Internet, would like to be modestly paid for surfing the Internet, and would feel themselves more important while helping their elder neighbors. In this way, a local store can even stronger emphasize its community values.
- This service seems to be expensive: purchase computers, Internet services, devoting a space for this “Internet store,” etc. Actually, cost could be reasonably low. The store already has computers – for other purposes – that could be used for Internet shopping during pauses between other uses. Any store that accepts credit cards already has access to the Internet. Space needed for “Internet store” isn't large, either: for instance, there is always some space that isn't intensely used during the regular working hours.

Is there something impossible to do? Of course, not. Owners of local grocery stores can do it – and successfully compete even with such a “dangerous” giant. What is needed for this success? A little bit of thinking.

Is this the only way to emulate the advantages of Wal-Mart? Of course, not. Where there is one solution, there are many.

Think Big, Target Small

A journey of a thousand miles begins with a single step.

- Lao-tzu, *The Way of Lao-tzu*

Brief Overview of Strategy

The strategy “Think Big, Target Small” consists of the following approaches:

- (1) Reveal the core principle of your innovation;
- (2) Find out what other target customers can benefit from this core principle, even if these categories are relatively small; and
- (3) Under competitive attack, move from one category to another; accumulate significant customer base in multiple small market segments.

This strategy had been designed to efficiently resolve the “unsolvable” dilemma:

The small company should address multiple target customers with multiple products...

...but this approach scatters scarce human resources without focus.

For more details, see Appendix 6; additional case study is described in Appendix 7.

Black Case Study: Wonderduck

The article in *The Wall Street Journal*³⁹ took me by surprise: it so overtly described the naked truth of real-world competition that it was really easy to see the “mechanics” of failure and develop a case study. Mr. Solomon, Texan entrepreneur, invented “a decoy duck that could flap its wings,” and ran a startup:

“Mr. Solomon formed a company in the mid-1990s to build and sell his invention. The entrepreneur, now 56 years old, offered the decoys through ads in hunting magazines and spent weekends selling them at hunting shows. When sales picked up, he quit his credit-information business and put his energy into improving his decoys, which sold for up to \$300.

“He added paddling feet, dual motors and adjustable wings, garnering five patents. Sales took flight, reaching \$1.3 million in 2000. At the peak, Mr. Solomon had 24 employees and was borrowing to expand production.”

At that moment, he was already on the competition's radar screens. As a result,

“...the decoys attracted more than ducks. Rivals soon brought out their own versions. In 2000, a catalog company named Herter’s, which had carried the Wonderduck, introduced its Widow Maker decoy, which closely resembled the Wonderduck but included a remote control to turn the wings on and off.

“...As competition grew, Mr. Solomon’s annual sales slid to \$150,000 by last year. He lost his savings. Last fall, he says, his bank sought to force him into an involuntary bankruptcy. The bank backed off after Mr. Solomon put up the title to his house, his daughter’s house, his business and his wife’s antique shop.

“His office is a museum to what might have been. An idle production building is stacked with pallets of finished decoys, collecting dust in shipping boxes. On his desk is a box of hunting videos that he still peddles on a Wonderduck Web site. The video shows Mr. Solomon’s decoys luring birds and hunters taking their pick of ducks, while he plays “House of the Rising Sun” on a duck call.

“Down to one employee, Mr. Solomon is still tinkering. His latest Wonderduck uses soft foam wings on adjustable hinges to simulate a flapping motion. His main hope is his patent-infringement and unfair-competition suit against Herter’s and Cabela’s Inc., a Nebraska retail chain that acquired the Herter’s catalog business and is now the biggest player in the high-tech decoy business.”

Sad story, isn’t it? However, if one takes a look from standpoint of business reality, the story is about entrepreneur’s “tunnel vision” rather than about “unfair competition.” Competition is always unfair to its victims... However, blaming competitors for competing is simply unreasonable. He’d better blame himself for lack of understanding of the basic nature of business: as soon as a company allows its customers to turn to the competitor, it loses business; everything is “fair” if it protects customer base from erosion. If Mr. Solomon could foresee the competition invading his market segment, he would think ahead of time how to deal with competition. He simply avoided this “bad thought.” As a result, he focused on succeeding in one market segment, with duck hunters, hoping to capture a large market share without any competition. These hopes couldn’t come true – and never had.

White Case Study: Wonderduck Revised

The article was so clear that it was easy to “revise” this case study and extract the lesson from this revision. Imagine that Mr. Solomon took a day to brainstorm “what happens if the competition runs in” and discovered that his invention – a dynamic decoy – can be useful in other areas of hunting, too. This mental exercise would bring him to the better understanding of the opportunities he had discovered: supply hunters with better decoys, thus bringing hunting to the next level and making it more enjoyable.

Then, he could come to the concept of “mutual core” for all these decoys: the electro-mechanical drive. The rest of decoy, i.e. its “body,” is changeable, while core remains the same – exactly as “Fat Product – Lean Process” strategy recommends. This technological concept would strongly support the strategy of shifting from one segment to another when competition becomes “unfair.”

With such core, simply ordering different types of decoy casings, he could easily shift from one market segment to another, accumulating the big success from small successes with every type of hunting.

Win the War, Not the Battle

To win 100 victories in 100 battles is not the highest skill. To subdue the enemy without fighting is the highest skill.

- Sun Tzu

Brief Overview of Strategy

The strategy “Win the War, Not the Battle” contains the following approaches:

- (1) Focus in one small market segment;
- (2) Watch carefully when competitive products hit the market; and
- (3) Under competitive attack, move from one segment to another, thus accumulating the significant customer base in multiple market segments, while keeping each market share small.

This strategy had been designed to efficiently resolve the “unsolvable” dilemma:

The small company should address multiple target customers with multiple products
...

...but this approach scatters scarce human resources without focus.

More detailed description see in Appendix 8.

Black Case Study: Pushing Quality Higher Than Needed

One meaning of “winning the battle” is, “winning every customer with highest quality product from the very beginning.” The company striving for the highest possible quality usually wastes a lot of money for “debugging” its product and manufacturing process before the product hits the market... where the customers don’t take this top-notch quality as a valuable differentiation worth extra money.

A Spanish company produces high-voltage transformers. In 1997, the company engineers found out that the new European standard on high-voltage equipment quality is going to be enforced in five years, and decided to prepare for this event. In a year, company acquired new quality-control measurements, and began improving the transformers so that they fit the emerging quality standard. Naturally, they found out that at least 45% of their products don’t meet this standard.

The manufacturing engineers took multiple steps improving the process; quality improvement was visible, but yet insufficient. When they invited me for consultation, 15% of transformers still couldn’t pass the strict requirements.

One of the strange things that caught my attention was... absence of transformers that didn’t pass the quality control. I was told that company isn’t selling them, although they do meet current standard’s requirements. Hence, there should be some small mountain of “bad-for-future” transformers – but I couldn’t find any. What I found out was that the Director of Quality Control took the idea of meeting the future standard as his personal duty. All transformers which didn’t pass the new test went immediately to the garbage. Cost of manufacturing these transformers was \$300 each. All this money was simply dumped without doing any good to the company. Engineers couldn’t even figure out the reasons for their

failure, and accordingly couldn't suggest any further improvements to the manufacturing process and product design.

Finally, the project team managed to "rescue" three transformers that failed the test. Further measurements showed that one of these three transformers passed the test 24 hours after the first test, and two other transformers demonstrated two different mechanisms of failure. Analysis of these two failures revealed two small "flops" in the manufacturing process that were immediately corrected.

However, Director of Quality Control discarded all the suggestions the team developed during this project as useless.

White Case Study: Microsoft

I assume, there wasn't any type of software where Microsoft could claim a "monopoly." Microsoft would rather share each market segment of the huge software market with other players. At the initial stage of conquering the new market niche, Microsoft doesn't pretend to offer the best or the least expensive or the most popular software. Probably, the only exception was Internet Explorer offered for free: it was a revenge for an overt threat. In the other market segments, Microsoft always began with minimum-functioning, but user-friendly to the inexperienced users software, whether it be Word, Excel or Visual Basic. Microsoft never tried to "win the battle" for any niche, rather followed the same pattern:

- Reveal the need of inexperienced customers in the ability exclusively possessed by well-trained professionals;
- Develop the first version of software that is friendly to inexperienced users and provides for minimum functioning;
- Bring the first version to the market and test the users' interest;
- If there is an interest of inexperienced customers, fight some critical bugs and steadily add functionality to the software; and
- When customer base becomes significant, integrate this software with other Microsoft products.

In this way, Microsoft never won a battle for any individual software, but always won a war via integrating the software in the Microsoft "family."

Bowling Alley

Brief Overview of Strategy

In this chapter, we consider the third strategy that finalizes the concept of solution to the “unsolvable” dilemma:

A small company should address multiple target customers with multiple products...
...but this approach scatters scarce human resources without focus.

The “Bowling Alley” strategy consists of the following approaches:

- (1) Develop multiple generations of product;
- (2) Reveal the logical sequence of conquering the market niches, so that current customers can serve as relevant reference to the new ones; and
- (3) Under competitive attack, move from one product generation to another, from one market niche to another, thus accumulating the significant customer base in multiple market segments.

This strategy fights simplistic understanding of business success with large customer base in one market segment.

This strategy was developed by Geoffrey A. Moore.⁴⁰ My contribution to this strategy was specific TRIZ support to its development and realization. For details, see Appendix 9.

Black Case Study: Bowling Alley That Never Took Place

My long-ago employer – let’s call this company *ZZZ* Inc. – was one of a few companies promoting TRIZ (Russian acronym for Theory of Inventive Problem Solving, the structured innovation approach first developed in Soviet Union) in the USA. The company was second-to-market, after the pioneer, Invention Machine Corp. While IMC used the “classic” approach, *ZZZ* developed more advanced and efficient techniques.

Instead of differentiating from IMC, *ZZZ* decided to use a more “conventional” “me-too” marketing message. The differentiation was subtle from customers’ point of view: while IMC offered software and accompanying training and consulting, *ZZZ* was selling consulting with accompanying training and software. The methodological differentiation was also unimportant to customers.

ZZZ could conduct the following distinct types of consulting, all of them based on the TRIZ method:

- (1) Problem-solving, i.e. resolving the problems the experts found to be “unsolvable”;
- (2) Failure analysis, i.e. revealing the real causes of accidents and failures the experts couldn’t discover;
- (3) Directed Evolution, i.e. predicting the next-generation product concepts; and
- (4) Failure prediction, i.e. predicting the high-probability high-damage failures unforeseen by experts.

For simplicity sake, *ZZZ* decided to sell all of them together. The sentiments were, “We can do all these services, then why should we postpone the cash flow from any?” and “Customer can’t distinguish which project he really needs.”

Any suggestions to design the “bowling pin” business model were rejected, as well as suggestions to focus on some specific category of customers. The reasoning was, “Everybody needs these services, so why should we reduce our market and limit our chances for a sale?”

As a result, at any sales call a prospect was overwhelmed with a multiplicity of unknown services. Sales usually went as “We know you have many problems; we can solve all of them for you in the following ways...” Then, the poor prospect heard the long list of services accompanied with buzz words only TRIZ specialists could understand.

Another consequence of such mess was even worse. If customer decided to buy any service from the list where he couldn’t distinguish one from another, he usually selected the less expensive and most “familiar” one, Problem-solving. When later it came out that the project was actually a Directed Evolution or Failure Analysis project, it was too late to renegotiate the pricing. Hence, TRIZ specialists had to camouflage the more complicated projects as simple Problem-solving, and deliver much more expensive services for smaller money.

Do you still wonder what the business consequences were? The company exists for more than 15 years. At its best time, it employed couple dozen unique and talented experts, but eventually lost them due to inability to pay...

White Case Study: Start-Up with 250 Opportunities

My client John J., with breakthrough innovation he had been developing in his mind for a decade, foresaw at least 25 different uses for this innovation. I facilitated him over the phone to expand his vision to 250 opportunities in 20 distinct markets and industries. This expansion of opportunities didn’t involve any changes in his idea – just discovery of alternative applications of its unique features.

He was so fascinated with new horizons that he included this vision in his presentation to investors. Then, the all hell broke loose. As soon as he said about 250 opportunities, investors got up and left the room... His actual email read:

“Suffering a bit of a crisis of confidence over here.

“Not sure that I am handling the investors correctly. Had a shot of ‘reverse perspective’ late last week where I looked at things from their side, and then at the type of information and feedback I am sending them. They could be building a very different picture of what we are achieving. I don’t think I’m handling this situation very well.

“I am also, all the time, taking my family closer to financial crisis.”

He had a feeling that something goes wrong, and couldn’t nail it down. He thought that those investors were just dumb and conservative. But, in my opinion, it wasn’t the case; they simply didn’t want to face the unsolved dilemma.

Again, over the phone, we developed the first draft of the “Bowling Alley” strategy; he got an idea, and further enhanced it. Actually, he had more than enough opportunities to select the appropriate “bowling pins.”

When he showed this model to investors, they didn't run away, but took out their checkbooks. Now, they saw exactly what they wanted: well-focused businessman, with significant ambitions and multiple opportunities envisioned.

Go Where the Puck Will Be

A good hockey player plays where the puck is. A great hockey player plays where the puck is going to be.

- Wayne Gretzky

Brief Overview of Strategy

The following strategy is illustrated in this chapter:

- (1) “Skate where the money will be”: discover which area of expertise in the Value Chain represents “not-yet-good-enough,” but performance-defining components and operations; integrate them into the company’s business and leverage them.
- (2) “Eat your way up the value chain”: persistently move to the new areas where the money will be, especially up the Value Chain; integrate appropriate components and operations into the company’s business and leverage them.
- (3) Support these changes in business model with efficient innovative efforts: ahead of time, address the challenges; keep the “unfair, non-conventional” solution proprietary and hidden from to your competition.

This strategy works only if the changes in business model are supported by commitment from the executive ranks of the company.

Business portion of the strategy intuitively used by many smart leaders is described in “The Innovator’s Solution.”⁴¹ Christensen and Raynor suggested a good strategic solution: select the opportunities that place the company in the appropriate position in the industry’s value chain. Another side of this coin, not described in “The Innovator’s Solution,” was my own contribution to this strategy: how the company that decides “skating where the money will be” can handle the burdens of being “performance-defining, but not-yet-good-enough” participant of the value chain. Details of this TRIZ support see in Appendix 10. An additional case study that in detail describes the use of this strategy see in Appendix 11.

Black Case Study: Compatible Cartridges

Many years ago I owned a business of recharging the inkjet and laser cartridges. I didn’t start it from scratch, but purchased the business and technological recommendations from another company.

I was looking for prospects, suggested them less expensive, but high quality cartridges, and delivered on their orders – it provided a good cash flow in addition to my consulting.

One interesting business idea suggested by the company who sold me the documentation was reselling the compatible cartridges. Some printer companies, such as Cannon and Epson, allowed other companies to produce and commercialize the inkjet cartridges compatible with “original” ones, but at least ten times less expensive. The “intermediary” business was pretty lucrative one: customer asks for cartridges, I buy cheap compatible ones, and sell them at 30% discount comparing to Office Max’s prices. My margin was up to 60% of “suggested retail price,” which was not bad at all.

This branch of my business existed for three years, but then some competitors began offering the compatibles online. Prices were hardly distinguishable from what I paid for these cartridges. Times of commoditization came, and I – still staying in the same position in the

value chain – was out of this business. At those times I didn't even think about strategies, so I couldn't find any good solution, and lost this good and easy business.

White Case Study: Microsoft Software

DOS, Disk Operating System, was the first success of Microsoft. At the time, an operating system complicated enough to support a wide variety of software packages while reliable enough to support uninterrupted functioning of computer was “performance-defining, but not-yet-good-enough” product in the personal computers value chain. Microsoft “occupied” this dubious position in the value chain, and quickly became the leader. Probably, there was a set of innovations, rather business than technological ones, which backed this success. It is pretty difficult to discover these “know-how” after about 30 years, but it looks like company continues milking these innovations even nowadays.

One of them is “not striving for highest possible quality and reliability of software product.” Microsoft always plays on the edge: quality of its products is good enough to provide reasonable reliability and functionality, while pretty far from being perfect. The fact that every new version of Microsoft Windows, with enviable persistence, crashes while presented in front of public suggests that this imperfect quality and reliability is an intentionally cultivated image. As a result of implementing this innovation, Microsoft moves to the market faster, while spending on software development less than its reliability- and quality-striving competition, and thus enjoying more significant profits.

Another Microsoft's innovation was targeting the non-professionals rather than experts. DOS could be used by anybody who didn't know a thing about computers; Windows is even easier for “dummies”; MS Office can be used by anybody able to read, type and move the mouse. Of course, professionals disrespect this approach that peels their uniqueness off...

One more Microsoft's innovation: multi-layer functionality in end-user software. All Microsoft software are easy-to-use at the level of functionality sufficient for needs of non-experts; further learning unfolds more and more functions only to those who really need them.

From obscure, “invisible” position of operating system developer, Microsoft moved upward along the software industry value chain. Microsoft Word wasn't initially as good and powerful as Multi-Edit (who remembers it now?), but – with the same innovative approach and exploiting the insider's expertise in the operating system – it became more compelling to the non-programmers, novices who now could easily produce typography-quality documents.

MS Excel won the competition against 1-2-3 Lotus for the same reasons. Excel wasn't as reliable and nice as its competition, but it was easier-to-use by “non-professionals,” thus drastically expanding the market for spreadsheets.

Here, for the first time, Microsoft applied another innovation: integration of its products. Since this moment, Microsoft – whenever it could – exploited its “intimate knowledge” of other software products, from operating system up, to make them more efficient, more compatible, and more user-friendly. Step-by-step integration of interfaces of Microsoft software products demonstrates implementation of this innovation at another systemic level.

Next step “upward” was MS Visual Basic. Now, Microsoft established itself in the software for software developers. Again, Visual Basic addressed “non-professionals,” people who couldn’t – and shouldn’t – know as much as well-educated, well-trained, but very expensive high-level programmers. This product was for people who yesterday didn’t know a thing about computers, but tomorrow should be able to develop simple pieces of computer programs. Again, the quality of Microsoft product – as well as quality of Microsoft users – was low, but “good enough” to meet the urgent needs of the market. The huge army of programmers who enabled the software boom of 90’s was using VB, not Delphi.

Another step “upward” the value chain: MS PowerPoint. This software destroyed the entire industry of presentation developers. It made the managers capable of easily developing the nice-looking, efficient presentations.

Next step “upward”: integrating the Internet activities into the Microsoft family of products. Here, Microsoft moved from simple web browsing and email exchange toward web development with FrontPage, as well as toward integration of MS Outlook into personal time management. Again, both products were made user-friendly to non-professionals.

This story goes on and on: MS Project that simplified the complex issue of project planning; MS Media Player; MS Server System; MS SharePoint. The same approach, the same innovations used again and again, the same success in new market niches. And the same hatred from experts whose unique expertise becomes commoditized and obsolete by this unreliable, poorly designed, bad “by definition” Microsoft software.

Evangelism Marketing

Brief Overview of Strategy

Company's ultimate success is in selling its product to the customers. Usually, sales is a costly activity. How the small company can afford it? The "Evangelism Marketing" strategy shown briefly in this chapter suggests the following:

1. Discover what your customers REALLY need, and develop the product that REALLY solves customers' problems;
2. Deliver this product to the customers; and
3. Organize the grassroots movement of customers who are "so happy they freely sell your product for you."⁴²

Management instincts resist to trusting the uncontrollable customers, especially when managers are devoted to "conventional," "They will buy anything we shovel down their throats." Not in this case. If you do believe that you deliver on real needs of customers, if you are honest with your customers, they do the miracle. But if you lie to them, they ditch your company, period. For details, see Appendix 12.

Black Case Study: TRIZ Competing with Its Own Customers

TRIZ (Russian acronym for Theory of Inventive Problem Solving), the systematic, structured innovation approach, has been developed in Soviet Union since 1946, when young and talented Henry Altshuller got an idea that "if there is no efficient theory on how to invent, I have to develop one." Since then, TRIZ helped its followers solve thousands of "unsolvable" problems, foreseeing hundreds of "unforeseeable" future products and inventions, and bringing the clients billions of dollars in savings and profits.

Since 1992, TRIZ has been promoted in the US, first by Invention Machine Corp., then by many other companies and independent consultants. Hundreds companies and thousands projects were literally rescued by application of TRIZ to the roadblocks that otherwise prevented "moving forward." TRIZ also proved itself in multiple projects as a more efficient and productive "replacement" or "add-on" to the super-popular Value Engineering, Six Sigma and Lean: TRIZ always produces better and more consistent results. In multiple cases, success of VE, Six Sigma or Lean teams was due to involvement of TRIZ approaches to address the "unsolvable" challenges these methods couldn't address on their own.

Research conducted by two economists in the Cleveland, OH branch of the Federal Reserve Bank's nonpartisan research division, discovered the following:

"Mr. Schweitzer and Mr. Bauer wanted to know what was really wrong in Ohio. So they built what they call the most comprehensive analysis they've ever seen of why some states' economies outperform others.

"Going back 75 years, Mr. Schweitzer and Mr. Bauer crossed average state incomes with key statistics in several areas, including tax rates, government spending, education levels,

and climate. The long timeline ensured a random blip in the business cycle wouldn't skew the analysis...

“Their analysis, the main feature in the Cleveland Fed's 2006 annual report, challenges much of the campaign rhetoric of Ohio's gubernatorial candidates.

“Tax levels and highway spending... did not affect state income growth significantly. A state's concentration of industry... mattered only a little.”

“What mattered most, Mr. Bauer and Mr. Schweitzer discovered, were states' patents per-capita...”

“Ohio also struggles in what Mr. Bauer and Mr. Schweitzer identified as the second-strongest predictor of income: the percent of high school and college graduates in a state.”⁴³

From this standpoint, it looks like TRIZ was the very approach that could improve the economical situation in the US. One could expect that TRIZ clients should be happy to spread the word of mouth, that TRIZ business should be one of the most popular and flourishing in the consulting services industry.

However, the reality shows something quite opposite. While the independent TRIZ consultants and trainers make a decent living from selling TRIZ services to the industry clients, the TRIZ companies (except, probably, one or two) hardly make ends meet. Every next sell is more difficult than previous. It looks like the industry clients prefer coping with troubles than inviting TRIZ for help. “Word of mouth” is rather negative – despite of technical successes. What is wrong with TRIZ business?

15 years ago, the very mentioning of “systematic innovation” was taken as an oxymoron. Nowadays, people don't choke on this wording: they already accepted the notion of “innovating in systematic, non-haphazard way.” This psychological obstacle doesn't exist anymore – but corporate managers still resist TRIZ services. Why?

There are multiple reasons. Here we consider only one: TRIZ, in the way it is positioned, competes with its own customers, engineers and engineering managers. When described in this way, this explanation sounds like the most stupid way to run a business; however, TRIZ businesses continue persistently “doing the same thing over and over again and expecting different results.”⁴⁴

TRIZ, from its very birth, was designed to help inventors and, more broadly, engineers in resolving the tough, seemingly unsolvable engineering problems. First, in mechanics, then in other areas of engineering. Eventually, it became evident that TRIZ principles and, more importantly, mindset can be efficiently applied in other areas of human activities. However, most of TRIZ experts and potential clients still consider it as a purely “engineering” technique.

Now, let's take a look at the duties of engineers in any industry:⁴⁵

1. Staff Engineer, Mechanical Engineer, Design Engineer:

- Work with suppliers on producing prototypes and offer ideas for improving the design and development of products

- Conducts analysis of competitors products to provide analogy from design and use point of view
 - Partner with product engineers and product managers regarding feasibility of products
2. Environmental Engineer / Sr. Environmental Engineer:
 - Assist plant operations and technical services in process troubleshooting and other areas.
 3. Toll/ Batch Chemical Process Engineer:
 - Troubleshoot operational issues with production processes and equipment.
 - Identify and implement process improvements to enhance throughput, efficiency and product quality in toll production operations.

The managers expect from engineers an unlimited capability to address any “issue” and “offer ideas for improving.” Although we do know that people cannot have unlimited capabilities, we do expect that from others, it’s human nature. When an engineer – or even the team of engineers – cannot troubleshoot an operational issue or identify successful improvement, the manager becomes suspicious that those engineers don’t possess sufficient qualifications for their position. Engineers understand this suspicion and do their best to “deliver the result,” even when there is no way to do so.

If the engineers fail to deliver, then the management starts seeking for the last resort, the consultants. TRIZ consultants are happy to help. Being supported by powerful analytical tools and recommendations on generating the good ideas, they quickly reveal the contradictions (dilemmas) that make the client’s problem unsolvable, zero-in on these contradictions and resolve them. Since TRIZ idea generation tools are designed to find the most “ideal” ideas, i.e. ones that are simple, utilize available resources, and provide needed outcomes, TRIZ projects usually deliver simple, implementable solutions. Technically, this is success.

However, TRIZ consultants practically never take into consideration the human side of innovative projects. Dilemmas are, in the first place, produced by “conventional” practices – this is why they seem unsolvable to the subject matter experts. TRIZ consultants, on the other hand, are “outsiders” to the particular industry, and they are not “enslaved” by industry-accepted expertise. As a result, TRIZ consultants easily “break the psychological inertia,” i.e. violate even the “fundamental rules” the subject matter experts are obeying in their daily practice.

Of course, if the problem is created by these rules, then – from the “engineering” standpoint – the only way to resolve this problem is to break these rules. But from the “human” standpoint breaking these rules sends the subject matter experts the message, “your expertise is worthless.” Subject matter experts hardly would be happy receiving such a message from outsiders. This message not only offends them, it diminishes their value in the eyes of their supervisors.

If the engineering manager is not familiar with the complexity of problem, with real reasons why it was unsolvable to his subordinates, then his natural reaction to the simple and efficient solution suggested by TRIZ consultants is pretty predictable, “Why my subordinates couldn’t find so simple solution before? Are they stupid, or what?” Some managers cannot resist a temptation to say it overtly in front of their subordinates who are already humiliated by

breaking the rules of their expertise. Such reaction further reduces engineers' respect to TRIZ consultants. A smart manager, on the other hand, feels the offense taken by his subordinates, and takes it as lack of TRIZ consultants' professionalism.

If the problem was really hurting the company's business, the technically reasonable and feasible solution must be implemented. The success of implementation, however, depends on whether or not there is a champion of idea. Since the solution offended the engineers, they would consciously or subconsciously do anything to prove that this solution doesn't work. This is the only available way to prove that their expertise is still valuable, and ideas of those TRIZ consultants have no value. This is the only way to recover their ruined reputation and self-esteem. Even if the manager still believes that the TRIZ solution resolves the problem, his own engineers efficiently prove him wrong. Whose fault is the failure of implementation? Of course, TRIZ consultants are to be blamed, and nobody else.

This is how the competition with business's own customers works against the business. Technical success easily turns into a human confrontation and business failure.

Rare occasions of successful implementation of TRIZ solutions only prove this "rule."

White Case Study: Ron Paul's Presidential Campaign

Mark Frazier, active participant in 2008 presidential campaign of Ron Paul and expert in Evangelism Marketing, describes what happened during this campaign⁴⁶:

"What's happening with the Ron Paul Presidential Campaign is changing the world and much of what is happening is not being recorded. More importantly, only a few people have the background and involvement to know and understand this ground breaking story..."

"We are running for president through Ron Paul."

"Ron Paul is only the rallying point for the freedom movement. The Ron Paul Revolution isn't about a man, it's about an idea. When Ron Paul is asked how his campaign harnessed the Internet he accurately says, 'We didn't harness the Internet, they harnessed us!'"

"Tens of thousands of people across the USA and all around the world are making a stand. They are making their voices heard. Each individual is singing the song of freedom in harmony with all the others. The tiniest voice, far removed from the centers of power, joins with others to become a huge chorus too loud to be ignored."

"This movement is more than just American politics, it's a global phenomenon made possible by recent advances in technology."

It's true: all this campaign was about an idea. Ron Paul's strong stand, "Let's follow the US Constitution in our decisions and policies," is the message many freedom-loving Americans see as the most promising solution to the nowadays political and economical turmoil. For more than 200 years, the US Constitution as the Law of the Land was the way to build America into what it is now: the most powerful proof that free enterprise, if protected from unnecessary governmental involvement, is the only way to success. Every time when American government decided to "circumvent" clear and concise Constitutional principles,

implement “nicely looking” socialist ideas and limit Americans’ freedom, the resulting devastation inevitably followed. Hence, Ron Paul’s message, supported by his outstandingly consistent and persistent voting record, was taken by many Americans as the most promising solution to nowadays’ problems of America.

Here, I’m going to show you only one of many successes achieved by evangelistic sales force; you can find much more in Mark Frazier’s book.

“Remember, Remember the 5th of November’ was the rallying call for Ron Paul supporters who joined together and set the record for the amount of money raised on a single day for any candidate during a primary.

“The event was referred to as a money bomb, a way to prove Ron Paul’s support was real. Instead of using violence as in the movie, Ron Paul supporters would break through the wall of silence and spin that was claiming Ron Paul’s massive support was only an Internet prank.

“On November 5, 2007 several records were set. In a 24 hour period over 38,000 normal people donated on average \$100 each, raising \$4.3 million. That was 30% more money than the previous record and 60 times as many people donating. It thoroughly proved Ron Paul has a lot of real supporters.”

The reasons why Ron Paul’s Presidential Campaign failed are unrelated to his message, i.e. to the “product” his “business” and evangelist sales force were selling. They were rather “company-” and “leadership-” related, which teaches us one more lesson: even if the company has a product worth being evangelized, it is not the guarantee of company’s success.

In my personal opinion, Ron Paul’s campaign failed because:

- (1) Ron Paul couldn’t manage properly his relationships with the mainstream promotional vehicle of any Presidential Campaign, the media – he was “always bad on media”;
- (2) Ron Paul is a good leader, but a poor manager: his poor selection of people in his Staff resulted in more losses than victories. As Mark Frazier writes, “The official campaign still hasn’t figured out how to organize and mobilize the supporters. The official campaign has unwittingly undermined the success of Ron Paul at every step”; and
- (3) Ron Paul and his staff couldn’t get what’s going on around them: all the achievements of grass-root evangelism marketing were accomplished “against the will and effort” of Ron Paul’s staff.

So, both Ron Paul and his campaign staff demonstrated managerial inability to properly “run the business.” Even the most expected by “customers” product, even the really widespread evangelism marketing movement couldn’t rescue this “business”... Interestingly, I’ve seen the Ron Paul Revolution signs in Michigan – even in way-too-Democratic Ann Arbor – for many months after the Ron Paul Presidential Campaign “went bankrupt.” People still love this “product,” even if the “business” isn’t in the market anymore.

Avoid Hard Blows

When a foe wants to hit you hard, always help him hitting hard. But who said that you should put your face in the way of his fist?

- *Judo wisdom*

Brief Overview of Strategy

The goal of any innovative strategy, and especially of this one, is to keep the company in business despite all the dangers. Being kicked out of business after the first significant success is the most difficult to withstand. This chapter suggests the following strategy for risk mitigation:

1. Always prepare for the highly potential risk ahead of time;
2. Thoroughly watch for early signs of danger; and
3. Under competitive attack, “slide away” from competitive blow.

Human psychology resists dealing with danger before it occurs; this is why implementation of this strategy is counterintuitive. You need to overcome the “natural” resistance of your co-workers, and address the risks long before they “materialize.”

For details, see Appendix 13.

Black Case Study: Panties with Pockets

Several years ago, I was at the entrepreneurs-and-investors networking meeting in Michigan. A successful lady-entrepreneur told us the story of her invention, the women panties with pockets for panty liners. These panties didn’t leak and were easy to keep clean during the critical days. Exactly what women of specific range of age need – and for some strange reason the underwear industry couldn’t provide before.

She patented the idea, made several samples, and attempted to sell the idea to an industry giant. In a few weeks, she received the letter saying that the company didn’t find this idea worth implementing. Then, she decided to commercialize this product on her own.

She ran the research on distribution of sizes and dimensions, designed the patterns for the most popular sizes, and launched the pilot production. Then, she went to Kmart and attempted selling the new product to them. After long discussions on “what sizes Kmart is carrying” she found out that her thorough research cannot beat the purely bureaucratic “decision.” She didn’t give up, produced the needed sizes, and supplied them to Kmart.

Next, Kmart wrongly displayed these panties in the wrong department, allocated the most “invisible” spot, and didn’t allow any advertisement. In a few months, only word of mouth of women who accidentally found these panties and figured out their purpose sustained the sales. For Kmart, it was a pure proof that this product has no merits. The wonder-panties were taken away from shelves.

A year later, the lady-inventor found the similar panties sold in Kmart and other stores. Those were bundled with panty liners; design was much worse than hers. Guess who was the manufacturer? Of course, the industry giant she had exposed to her idea.

When she called that company and inquired about this new product, she was told that company really wasn't copycatting her idea, they just used some "secondary design elements" for their new panty liners. They don't even sell these panties: they sell the panty liners, and accompany them "for free" with convenient holder. End of story.

The lady-entrepreneur told this story to the audience as a warning that "there are some bad boys out there who can steal your invention." She was lucky that this wasn't her only business.

White Case Study: Biometric Vehicle Key

This case study is a fiction fabricated from real facts.

The start-up company BioKey Inc. designed the biometric key. This key could read the fingerprints of car owner or his family members and open the vehicle. The company's experts quickly found out that the "simplest" solution, one fingerprint sensor, wasn't the easiest one: for appropriate level of security, the requirements to sensor's sensitivity drove the cost really high. Even the most security-conscious customers wouldn't buy the keys at \$1,000 apiece.

Brainstorming didn't help; there seemingly was no way to reduce cost or achieve any good security with cheaper sensors.

The owner of company asked his personal friend who was a TRIZ specialist if he could help. The specialist facilitated the team of company engineers. Pretty soon they found out that absolutely counterintuitive shift from one sensor to two or more doesn't increase cost, rather reduces it, while efficiently improving the "recognition power" and, accordingly, the level of security.

The concept of improvement was simple. If sensors "measure" two or more fingerprints, it doesn't mean that these are fingerprints of different people. Quite opposite, these are the fingerprints from the same hand of the same person. The combined sensitivity of sensors in the key should remain the same, regardless of number of sensors. As a result, the more sensors are used, the lower sensitivity each of them should have. The cost of sensor drops exponentially with reduction of its sensitivity. The key with more sensors can be profitably priced way below the fewer-sensor key. Every new sensor dropped price by times rather than by percents.

This concept suggested to the company owner the efficient competitive strategy: be prepared to implement as many as five sensors, but start with two, since Mercedes already promised one-sensor door opener in the next-year models. In this way, the company could offer the key to other OEMs at slightly lower price, and wait until the competition jumps in and wages a price war. Then, the company could drop price even lower while adding the third sensor, and so on. In this way, the company inevitably wins every bid with Tier II suppliers of the vehicle security systems.

The most significant secrets to hide were the strategy and the sensor's sensitivity. For the former purpose, the company owner imposed a very strong secrecy policy inside the company, accompanied with distributing the company shares among the employees as an incentive to keep their mouth shut. For the latter purpose, the company owner concluded the

secret agreement with sensors supplier, another start-up, who agreed to redesign the sensors so that their sensitivity cannot be easily recognized.

In five years, the company successfully survived multiple competitive attacks by driving prices down even faster than competition, while staying profitable. Further developments of key and system of sensors drove the cost of key below any “believable” level in the industry.

Strategize Your IP

You can get much farther with a kind word and a gun than you can with a kind word alone.

- Al Capone

Brief Overview of Strategy

The strategy in this chapter, if properly implemented, protects entrepreneurs from inevitable patent infringement lawsuits in the following steps:

1. File “patent fence”-type patent applications, describing all the possible and feasible alternatives to all components of your innovation;
2. Timely file the patent applications, protecting only features that are commercially successful; and
3. Under competitive attack, “cover your anatomy” with this patent fence.

Rephrasing Al Capone, “You can get much farther with a good business and an airtight patent-fence IP protection than you can with a good business alone.” Turning IP protection in the differentiator of business success, in “business gun” is a smart strategy. The details are considered in Appendix 14.

Black Case Study: RIM vs. NTP

Story of “BlackBerry law suit” is relatively fresh and well-known. Settlement of \$612.5M paid by Canadian company Research in Motion, Inc. to American company NTP was really enormous. Of course, losing the entire USA market where BlackBerry already became the favorite tool of managers and business people would cost RIM much more.

Let’s look at this story from different standpoint: intellectual property and its protection.

At the time of this patent infringement law suit, RIM already had more than 120 patents, most of them describing various improvements to BlackBerry. It’s really substantial investment in company IP – probably, between \$1.2 and \$6.0M. Sounds like really good protection, doesn’t it?

NTP brought to the court only... 5 patents. How come those 5 “soldiers” won against 120 enemy “soldiers”? It could happen only if these 5 were Green Berets fighting against 120 muddle-headed recruits. Analysis of NTP patents confirms this opinion. The latest one contained 650 claims; the others had smaller, but nonetheless sizeable numbers of claims.

It sounds like RIM’s patent attorneys cared, as most of patent attorneys do, about patentability, i.e. smoothness of patent applications’ “travel” through the US PTO. NTP’s patent attorneys, quite opposite, cared mostly about the patents’ protectability, thus developing hardly penetrable patent fence.

Of course, NTP’s “average” patent costs order of magnitude more than the “average” RIM’s patent. Just filing fee for patent with 650 claims exceeds \$35K, while it doesn’t exceed \$2K for “usual” patent. However, NTP’s return on investment is really good, while RIM’s one is rather negative.

The lesson to learn: Caring about patent protectability is much more profitable than “conventionally” caring about patentability.

White Case Study: Ronald A. Katz

For the first time I'd heard about Ronald Katz and the way he uses his intellectual property in 2003. At that time, my then-employer had offered an innovative help to the attorney who represented a company that sued Mr. Katz in attempt to invalidate his patents. My first analysis of Mr. Katz's patents showed that (a) they are pretty complicated and describe practically all aspects of using the phone automated systems, and (b) that systematic innovation approach could, probably, find the ways to circumvent them or, at least, invent around them. Fortunately, this project "didn't fly."

Later, I've read in Wikipedia about Ronald Katz and his business. This description suggested that Mr. Katz employs really strong IP strategy against his "counterparts":

"Ronald A. Katz is an inventor and president of Ronald A. Katz Technology Licensing LP. His inventions are primarily in the field of automated call center technology. Katz has developed a portfolio of more than 50 US patents covering his innovations. His inventions are related to toll free numbers, automated attendant, automated call distribution, voice response unit, computer telephone integration and speech recognition.

"In 1961, Ronald Katz co-founded Telecredit, Inc. This was the first company to 'enable merchants to verify consumer checks over the phone using an automated system without the assistance of a live operator.' In 1998, Mr. Katz formed a partnership with American Express Company to provide call processing services. That partnership later became First Data Corporation.

"Ronald Katz has since founded Ronald A. Katz Technology Licensing, L.P. (RAKTL). RAKTL's primary purpose is to license the Katz patent portfolio to companies using automated call centers. Over 150 companies have taken a license to the patents. RAKTL has thus earned approximately a billion dollars in license fees. Katz has been characterized as a patent troll largely due to the aggressive legal tactics used by RAKTL, such as suing infringers who refuse to take a license.

"The written description of the invention in Katz's patents usually runs 20 to 40 pages, but the claims run into hundreds of pages. 'He has literally thousands of claims, and they differ only in trivial respects. Many are broad and vague, and sorting them out takes a lot of time,' says an attorney who asked not to be named. Katz denies that his strategy is to overly amend and complicate his patents.

"The partial list of Katz licensees includes:

- AT&T
- Bank of America
- Citibank
- Delta Air Lines
- Hewlett Packard
- Home Shopping Network
- IBM

- Microsoft
- Sears, Roebuck and Company
- Wachovia
- Wells Fargo
- TD Ameritrade⁴⁷

Patent writing approach, as well as patent licensing and patent infringement monitoring approaches used by Ronald Katz are worth thorough studying by innovative entrepreneur strategist. Mr. Katz successfully milked the entire industry of automated phones for about 20 years – what other proof of this strategy do you need?

The Bear Hug

The wise learn many things from their foes.

- *Aristophanes*

Brief Overview of Strategy

The entrepreneurial strategist has to concentrate on the most dangerous competitors. The essence of “The Bear Hug” strategy is keeping the “equal” competition under control and using their resources while focusing on dangers from large competitors:

1. Reveal what unavailable expertise is needed for success;
2. Find out the potential competitors that possess this expertise;
3. Share a portion of company’s unique expertise;
4. Temporarily partner with potential competitors to acquire needed expertise; and
5. When you feel the partnership isn’t beneficial anymore, drop and kill the “partner.”

This “counterintuitive” strategy contradicts the “conventional” bravery, “We’ll kill them all,” as well as “conventional” loyalty forever, “They are our partners, let’s share every single resource with them.” None of these approaches has business merits. This strategy sounds “immoral”? Who said the morality is a business virtue rewarded in this life?

For details, see Appendix 15.

Black Case Study: A Large Suitcase With No Handle

Trust your friends, but tie up your horse

- *Chinese proverb*

The consulting company I was working for promoted the structured innovation approach (TRIZ). One of the powerful capabilities of this approach is, a TRIZ consultant can always find a way to improve on any invention. From time to time, business people come up with the same brave idea, “Let’s sell companies and technology transfer officers the improvements to their intellectual property!”

I don’t want to explain in detail why this business idea is not good. I would mention only one reason: improving the intellectual property is additional work; there is no budget specifically allocated for this service in any company or technology transfer office. Hence, the only source of money to pay for this service is the manager’s reserve. Usually, it is small enough, and there are many urgent and important needs competing for this reserve. This service is not among the most urgent or important ones.

Several business people then affiliated with my employer were fascinated with great horizons they envisioned with this business idea. They immediately organized the new start-up tightly bound with my employer in strong partnership: my employer’s TRIZ consultants were to generate ideas on improvement of clients’ IP, and two partners shared the revenue. The executives of my employer, of course, were on the board of directors of this new start-up. They were fascinated with great potentials of this idea, too.

My employer was a start-up itself, and its CEO held more than one office: he was also the main salesman. Since other organizers of new “joint venture” didn’t want to dirty their hands

in sales, they lured this CEO to sell IP projects. He refocused all his activity to this new venue, and practically stopped selling other consulting projects.

Pretty quickly it came out that IP projects cannot be sold for big money. Our accountant even sent to CEO the letter telling that internal cost of these projects, i.e. TRIZ consultant's hourly wage multiplied by time the TRIZ consultant needs to learn the patent, come up with new ideas and develop the report, costs twice as much as the price the clients are paying. It was, clearly, the business suicide. But luring voices continued convincing the CEO that great cash flow is just around the corner.

My employer was full-speed heading into the situation of "a large suitcase with no handle": one cannot carry it, but grudges dropping it. Fortunately, I left the company when this story just began unfolding. In a year, both the company and the CEO's health were totally devastated. The partnership, however, existed for three years, and then eventually "died."

The question that still amuses me is, "What was the business reason for such loyalty to the partner and disloyalty to his own business?"

White Case Study: Big Company, Netscape and Microsoft

To secure ourselves against defeat lies in our own hands, but the opportunity of defeating an enemy is provided by the enemy himself.

- Sun Tzu

I learned about this story while participating in development of software supporting structured innovation (TRIZ). It used MS Internet Explorer browser as a convenient hypertext interface. TRIZ recommendations and case studies (illustrations) were embedded in the software through FrontPage.

The company I worked for couldn't afford full-blown testing; debugging usually accompanied the frontline use of this software in the consulting / facilitation projects. Hence, the calls to the software department from consultants-in-field weren't a big surprise. Usually, the software team quickly identified the culprit, and in most cases the problem was related to the user's (client's subject matter expert) computer configuration. But this time...

The call was from our consultant who got the first project at Big Company. Such a big account should be treated with all due respect, and success of the first project was crucial. That's why the calling consultant was really upset: software, specifically its "recommendations and illustration" portion, didn't work AT ALL; moreover, it didn't work in ALL computers!

We all were in shock. It simply couldn't be! We used the Internet Explorer browser as a tool, and it was an integral part of Windows. Hence, all Internet Explorer's functions had to work, period! We checked every piece of computers' configuration – nothing could give us a clue of what happened!

When the shock eased, we called the Big Company's IT department, and asked for their advice. As soon as they heard that our software uses Internet Explorer browser as a software component, they started laughing. Then, they explained to us that Big Company signed a long-term contract with Netscape. This contract says that none of Big Company computers

should have Internet Explorer, period. The only allowed browser was Netscape Navigator. Of course, the functions of Internet Explorer used in our software were incompatible with Netscape Navigator. Our software couldn't work.

We experienced another shock when we asked the simple question, "How come you use Windows, but functions of Internet Explorer don't work? We know that Internet Explorer's functions are an integral part of Windows!" The answer was really brilliant, "Big Company asked Microsoft to develop for us 'exclusive' Windows, without these functions."

We couldn't recover from shock till the end of the day.

You can ask me, "What is the lesson in this story?" If your competitor "steals" customers, get paid by these customers for the right to use the competitive product. Don't fight the competitor, rather make customer decide if he wants to pay you for the right not to use your product.

White Case Study: Invest in Your Competitor

During the 2008 federal government debates on whether to bail out the American automotive giants or not, there was a rumor that Japanese automotive companies decided to provide their American colleagues and competitors with money, either investment or loan, to "sustain" them. I really liked this idea, and took it as a perfect example of Japanese strategizing – even if it never happens in the real business world.

Imagine that your competitor is running the business so bad that his company is at the edge of Chapter 11. What are your options?

1. Let competitor crash completely. Is it good or bad? It's, probably, bad for your business, because, with crash of this competitor, others become competing more fiercely. The hot competitive war will go until new big company takes place of fallen competitor. Can you foresee the casualties your company will experience during this war?
2. Let competitor file Chapter 11. Sounds good, because for the next few years this competitor is "out of play," restructuring and recovering. However, after that period this competitor becomes much stronger than now. Can you guarantee that your company can withstand competition with newly energized enemy?
3. Let competitor survive for a few more months – or even a few years. This seems to be a bad idea, but think what the competitor will do if provided with some money "out of the blue." I hardly believe the competitor that already runs the business the wrong way can use their money to change, reorganize and correct its business behavior. More likely, this happy competitor will continue running business the same – wrong! – way. Then, you can pay much more attention to other competitors, and forget this one for the time being.

Hence, pretty controversially, if you "help" the competitors that run their business wrong, you further weaken them by depriving them of the opportunity to recover and become strong. Business judo, isn't it?

Bad News: Why These Strategies Are Usually Rejected

The bad news is, the strategies developed in this dissertation involve multiple inherent dilemmas. These dilemmas have the same root cause: the strategies are complicated and quite “unnatural,” and they provide company with benefits later, while substantial efforts must be applied immediately, upfront.

People with short-term thinking and people with long-term thinking cannot understand each other. People with both short- and long-term thinking are pretty rare breed. As a result, the discussion between strategic-minded executives and tactical-minded management is the only real-world example of perpetual motion, without any useful outcome. Small business isn’t an army; the boss’s orders are never executed exactly. It’s so easy to execute these orders in the way that provides immediate benefits and hurts only later, when nobody can discover the culprit.

There are many “good” reasons why entrepreneurs, managers and executives consider these strategies counterintuitive and simply reject them.

Short-Term Vision

- “Let’s get to the success first, and then we’ll implement these strategies. Now we have more urgent troubles at hand”;
- “‘An eye for an eye’ is the only way to compete,” “Maybe, this won’t happen to us, so why bother ahead of time,” and “Let’s address the trouble when it happens” seem more intuitive approaches to decision-making;
- “We have to run to the market fast with easy-to-produce product”;
- “We are under immediate competitive attack, and we don’t have time and resources to try this doubtful approach”;
- “We need to focus, and this ‘shifting’ to new product and target customers simply confuses us, investors and customers,” “We need to carry a consistent message, so when we change the message, we have to start every time from scratch”;
- “We need to see the great success from the very beginning; all this fragment-picking doesn’t work,” “We need to look like winners, then investors and customers will love us; otherwise, they will think we are losers”;
- “It is stupid not to maximize your success with current target customer, even while reducing the price – everybody is doing that”;
- “This position in the value chain is well-known for too small a margin, so our company will be unprofitable,” “We need to seek very profitable opportunities to convince our investors right now”;
- “It takes way too long to organize this ‘community,’ and we have to rush to market and get cash flow fast,” “Nobody believes in what we say in our marketing materials, so people will never sell it for us,” or “It is stupid to waste our time and effort on this futile attempt to organize unorganized crowd”;
- “We don’t have money right now to spend for this monster patent,” “We will patent other things later, when we have enough money, but now we need to patent at least something,” or “Why should we patent things that we aren’t going to implement?”;
- “We should demonstrate to our investors that we can beat any and every competitor,” “Show me how we’re going to fight this competitive challenge,” or “We aren’t cowards, we bravely fight all of them”;
- “We have more important and urgent things to do,” “We don’t have resources to waste them for your nightmares that will never happen,” or “Don’t talk about these risks, or they will realize.”

Immediate Investment And Effort Without Clearly Understood Return

- Implementation of these strategies is more expensive short-term, reduces company profits, and involves a sufficient effort upfront, while the long-term risks and advantages don't seem that realistic;
- These strategies impose an extra burden on the initial stage of product development that is financed by the most "expensive" money of seed investment. It doesn't look right to both company and its investors to run all initial activities that may pay back in the very long run rather than to speed up to the market, leaving such "big" development for later, when the cash flow allows (this "later" is a politically correct version of "never"); and
- These strategies impose an extra effort on company leadership: instead of ordering their subordinates to find a way to compete, they have to work hard on prevention of the competitive threats that haven't realized yet.

"Marketing" Reasons

- "We cannot develop a brand name if we run from one segment to another";
- "We need to start with the best possible product, otherwise customers won't accept it; and
- "For marketing reasons, we need to address the largest possible market right away."

Subsequent Dilemmas

- These strategies involve new dilemmas, aka "subsequent problems," that seem to be a good reason to discard the strategies;
- Implementation of these strategies causes short-term losses and extra expenses, thus reducing company profits, while the long-term advantages don't seem that realistic; and
- These strategies invoke a risk of unknown approach without overt immediate payoff.

Other Reasons

- "If it was so easy, others would already use it";
- "People who aim small, get even smaller; for success, you need to aim really huge to get big";
- "We cannot spend all our efforts starting every time from scratch";
- "We cannot rely on this uncontrollable crowd," "Investors won't believe in our projections if they hear that they depend on customers' behavior," or "We don't have anybody as charismatic as Guy Kawasaki to lead this crowd";
- "Nobody drafts so overcomplicated patent applications, US PTO will reject it";
- "We'll, probably, partner them later, but now we need to develop everything in-house," "We cannot trust somebody's expertise, we have to have our own," or "They will steal from us and won't give us anything"; and
- "You are simply paranoid," "Your negative attitude will scare off all investors and partners," or "Don't ever raise these issues, even inside the company."

* * *

As one could see, this list is very long and incomplete. People easily find the "good," "hard to beat" reasons to stay in their comfort zone. In the end of the battle, when everything is lost due to their laziness, they just lift their hands in dismay and say, "Oh, we were just unlucky" or "Oh, those big bastards!" Worst of all, they start blaming those who proposed this strategic approach from the very beginning for "not being persistent" and "not doing anything." They never blame themselves – that's the human nature.

The majority of people focus on short-term achievements and never care of long-term; they simply take the “long-term” as “many short-terms.” They are never wrong, since the short-term reasons are always overt, while long-term ones are so far away it’s hard to see them. They save money right now, and when it leads to big losses later, they never think it’s their fault. They were just doing what seemed right at the moment, but the situation turned wrong, big sharks were too unfair, and those who suggested other way of actions couldn’t “sell it right,” couldn’t prove their suggestions. They never blame themselves. Even more importantly, their brains are made so that they physically cannot think “long-term” – so, this is not even their intentional fault.

The subsequent dilemmas are the “real” reasons to discard the counterintuitive strategies. Even if the strategist manages successfully selling this strategy to his business companions, inability to overcome this reason simply kills the strategy. This is the bad news. The good news is, these sequential problems are well-known, and have solutions. The strategic system successfully addresses them.

The “marketing” reasons usually have nothing to do with real marketing, with research on what customers really want, where are the best markets, and how to design the efficient and to-the-point value proposition. People use wordings “marketing reasons,” “business reasons” and the like to cover with these “voodoo” terms lack of understanding, research and responsibility. You will find it difficult to response to these reasons: it looks like you’re making excuses to them, which isn’t the best negotiating position. Even research-based proof is hard to sell. If you ever hear words, “for marketing reasons,” translate them to the plain English as “for the sake of me being right and you being wrong.” Nothing else. You can challenge these “reasons” by asking, “What research supports this opinion?” and get an answer, “My huge [translated as “undocumented” or even “non-existent”] marketing experience shows that.” A typical answer, with the same “translation” as before.

The rest of reasons, from “tomorrow, not today” to the personal accusations in paranoia and negativism, are also actively used to discard the strategies. Usually, they are used as a last resort: you see, we agree with you, but this is bad timing and you aren’t the proper person to do it.

The reason of listing these “reasons” is obvious. Acceptance of “Catch Me If You Can” strategy immediately brings to existence multiple subsequent dilemmas. They are resolved by system of strategies described in this dissertation. However, attempts to implement these strategies immediately raise new subsequent problems hidden behind the “reasons” listed above. Hence, strategist’s analytical work doesn’t stop at “strategic level.”

Consistent and persistent implementation of strategies is an enormous Herculean deed. A strategist, to get his strategies implemented properly, has to be prepared to the hard daily job of strategizing, deciding – and controlling the outcomes. Otherwise, the best strategies are nothing but nice exercises of curious mind.

Summary of Chapter 3: System of Efficient Winning Strategies

This thesis provides with “nodding acquaintance” with system of efficient winning strategies for innovative businesses. As one could see, this is the **system** rather than a collection: the strategies in this system not only pursue the same goal, but also match each other, support each other, and resolve each other’s inherent dilemmas. Using some of them is already better than competing in the “conventional” way. Using them together, as multi-dimensional strategic mindset, becomes the recipe for business success.

These strategies are **winning** rather than merely rescuing. The small company that employs these strategies from the very beginning starts benefiting from them only at the moment when company’s business becomes really successful. Why only then?

At the moment when small company gains substantial success in the market, it inevitably pops up on the competitors’ radar screen and attracts a large sharks’ attention. The only reasonable reaction of large companies seeing their customer base eroded is the “killing blow.” Small company, fatigued from a long fight for survival and finally seeing the light in the end of the tunnel, happily relaxes and loses guard – and unexpected, but inevitable “killing blow” catches it unprepared. Any “conventional” response to the hostile competitive acts only accelerates the “death” of small business.

The strategies described in this thesis were designed to prevent this unfortunate sequence of events. If they are employed from the first day of the business’s operations, if they are followed persistently and consistently, then the company comes to the “day of success” well-prepared and aware of inevitability of “killing blow.” The company leadership’s mindset is already formed to employ “counterintuitive” responses to the competitive hostility, avoid being hurt, and finally gain even better success despite all competitive efforts.

These strategies are **efficient** because they provide small company with necessary results, while keeping the competition unaware of company’s unexpected responses. These strategies are counterintuitive not only to the small company who employs them, but also to the competitors. Hence, they catch competitors unprepared to respond appropriately. At the same time, they provide the small company with long-term “unfair” competitive advantages.

Brief summary of strategies see in Appendix 18.

The fact that these strategies are victory-oriented and counterintuitive to the competitors is the good news. Even better news is the fact that competition stays unaware of atypical nature of company’s responses, and thus cannot prepare and deliver an appropriately atypical blow. Expectation that typical means always bring the success is so strong that no alternative is even tried. As long as large competitors are using the same old tricks, the innovative, prepared ahead of time competitor can survive and win.

Summary

What is the major scientific value of this thesis?

Summary

1. Author discovered important, but not researched before, stage of evolution of innovative business. Risk to the innovative company's existence in the market at this stage is elevated. The stage begins right after the first substantial commercial success of innovative product, and ends either when company disappears from market or when the market boom begins and nature of competition changes. As a result of first substantial commercial success, the company stands out of the homogeneous crowd of "novices" and threatens the competitors; hence, the company experiences maximum competitive pressure. On the other hand, if company responds to the competitive blows in the conventional ways, its scarce resources quickly run low, and company crashes.
2. Author developed strategies aimed at successful passing of this stage. With these strategies innovative company efficiently utilizes scarce resources, expands its business, avoids competitive blows and deceives competitors on its intentions, plans and responses to competitive attacks.
 - a. Since the company's situation at this stage is similar to the situation when the contradiction arises in technology, author developed the strategies via standard innovative procedure, i.e. revealed, analyzed and resolved the contradictions.
 - b. Author revealed the typical contradictions arising in course of competitive fight during this stage, and patterns of their occurrence. In research of these patterns, author found out that contradictions occur when entrepreneurs follow the assumptions and beliefs shared by majority of businesspeople. When entrepreneur takes these contradictions as "unsolvable," the company's crash is inevitable.
 - c. Author integrated the strategies into the strategic system. This system suggests the following approaches: prepare ahead of time; quickly, at minimum cost shift to new generations of product and new markets; act covertly, and exploit the customers' support and know-how designed into the innovative process.
3. Author provided the methodological support to implementation of suggested strategic system. Although the systematic approach to diversification of innovations is essential to success of innovative business, there is no known method specifically targeting this need. To meet this expectation, author developed efficient, easy-to-use method for revealing the new markets and generations of innovative product.
 - a. The method consists of fast generation of practically exhaustive set of alternative realizations of innovative idea and subsequent selection of appropriate product concepts based on specific criteria.
 - b. Generation of alternatives is aimed at development of product platform consisting of all feasible realizations. Generation of alternatives involves double morphological synthesis along the predetermined axes, thus multiplying the basic idea of innovative product.
 - c. Alternatives for implementation are selected by the following criteria: the subsequent generations of product satisfy the needs of customers better; new categories of customers pay attention to the "word of mouth" of existing

customers. These criteria provide for uninterrupted process of shifting to new generations of products and new markets.

4. Author tested the strategies in real consulting project. He found out that development and implementation of these strategies calls for making the unobvious decisions in contradictive situations. For this purpose, the author developed and tested the new approach to addressing the contradictions that arise in non-technological areas of human activities. This approach suggests revealing the wrong beliefs and assumptions, analyzing them, and purposefully modifying the understanding of new situation rather than modifying the conflicting elements.

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