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UTILIZATION OF TRIZ FOR DEVELOPMENT OF BUSINESS STRATEGIES FOR INNOVATIVE COMPANIES

(Appendixes)

Dissertation to TRIZ Master's certification

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Appendix 1. Rules for Idea Multiplication

Direct Alternatives (DA)

In general, Direct Alternatives could be considered as follows:

- Do the same, with different objects;
- Do the same, with different tools;
- Achieve similar results via different actions; or
- Achieve similar results under different conditions.

Table 1.　　　Direct Alternatives

Object	• Function modifies similar object or an object of the same type; • Function modified different object in the same way.
Tool	• Object gets impact from similar tool or from a tool of the same type; • Object gets impact from different tool in the same way.
Action	• Object is impacted by similar action or by an action of the same type; • Object is impacted by different action in the similar way.
Input	• Function consumes similar input or input of the same type; • Function consumes different input in the same way.
Output (Outcome)	• Function modifies similar state of object or the same state of object of the same type; • Function modifies different state of the same object or the same state of different object; • Object in needed state appears in the situation ready-made, so there is no need to perform function.
Conditions	• Output (Outcome) is produced under similar specific condition or under condition of the same type; • Output (Outcome) is produced in the same way under different condition.
Environment	• Output (Outcome) is produced in the similar environment; • Output (Outcome) is produced in the same way in the different environment.
Resource	• Similar resource or resource of the same type is consumed; • Different resource is consumed in the same way.
Time	• Output (Outcome) is produced in the similar timeframe, at similar moment of time, or with similar temporal characteristics; • Output (Outcome) is produced in the same way in different timeframe, at different moment of time, or with different temporal characteristics.
Space	• Output (Outcome) is produced at similar location, in similar area, or along similar spatial direction; • Output (Outcome) is produced in the same way at different location, in different area, or along different spatial direction.

Opposite Alternatives (OA)

The Opposite Alternatives, in general, are as follows:

- Do the opposite to the same objects;

- Do the opposite with different tools;

- Achieve opposite results via different actions; or

- Achieve opposite results under different conditions.

Table 2.   Opposite Alternatives

Object	• Function modifies in opposite way a similar object or an object of the same type; • Function modified in the same way an object with opposite features.
Tool	• Object gets opposite impact from similar tool or from a tool of the same type; • Object gets the same impact from tool with opposite features.
Action	• Object is impacted in opposite way by similar action or by an action of the same type; • Object is impacted in the similar way by opposite action.
Input	• Function consumes input of the opposite type in the same way; • Function consumes input with opposite features in the same way.
Output (Outcome)	• Function modifies opposite state of similar object or the same state of object of the opposite type; • Function modifies state of the same object or the same state of different object in opposite way; • Object in state opposite to needed appears in the situation ready-made.
Conditions	• Opposite Output (Outcome) is produced under similar specific condition or under condition of the same type; • Output (Outcome) is produced in the same way under opposite condition.
Environment	• Opposite Output (Outcome) is produced in the similar environment; • Output (Outcome) is produced in the opposite way in the different environment.
Resource	• Similar resource or resource of the same type is consumed in opposite way; • Resource with opposite features is consumed in the same way.
Time	• Opposite Output (Outcome) is produced in the similar timeframe, at similar moment of time, or with similar temporal characteristics; • Output (Outcome) is produced in the same way in opposite timeframe, at opposite moment of time, or with opposite temporal characteristics.
Space	• Opposite Output (Outcome) is produced at similar location, in similar area, or along similar spatial direction; • Output (Outcome) is produced in the same way at opposite location, in opposite area, or along opposite spatial direction.

Status Quo Alternatives (SQA)

There are three types of Status-Quo Alternatives:

- Keep status quo, avoid changes;

- Recover or restore status quo after changes; or

- Stabilize or preserve status quo.

Table 3. "Avoid Changes" Alternatives

Object	• Function avoids changes of similar object or of an object of the same type; • Function avoids changes of different object in the same way.
Tool	• Object avoids impact from similar tool or from a tool of the same type; • Object avoids impact from different tool in the same way.
Action	• Object is protected from impact of similar action or of an action of the same type; • Object is protected from impact of different action in the similar way.
Input	• Function avoids consumption of similar input or input of the same type; • Function avoids consumption of different input in the same way.
Output (Outcome)	• Function avoids modification of similar state of object or of the same state of object of the same type; • Function avoids modification of different state of the same object or of the same state of different object; • Object is always in needed state, so there is no need to modify it.
Conditions	• Output (Outcome) avoids changes under similar specific condition or under condition of the same type; • Output (Outcome) avoids changes in the same way under different condition.
Environment	• Output (Outcome) avoids changes in the similar environment; • Output (Outcome) avoids changes in the same way in the different environment.
Resource	• Similar resource or resource of the same type is not consumed; • Different resource is not consumed in the same way.
Time	• Output (Outcome) avoids changes in the similar timeframe, at similar moment of time, or with similar temporal characteristics; • Output (Outcome) avoids changes in the same way in different timeframe, at different moment of time, or with different temporal characteristics.
Space	• Output (Outcome) avoids changes at similar location, in similar area, or along similar spatial direction; • Output (Outcome) avoids changes in the same way at different location, in different area, or along different spatial direction.

Table 4.   "Recover Status-Quo" Alternatives

Object	- Function recovers state of similar object or of an object of the same type; - Function recovers state of different object in the same way.
Tool	- Object recovers its state after impact from similar tool or from a tool of the same type; - Object recovers its state after impact from different tool in the same way.
Action	- Object recovers its state after impact of similar action or of an action of the same type; - Object recovers its state after impact of different action in the similar way.
Input	- Function recovers Object's state with similar input or input of the same type; - Function recovers Object's state with different input in the same way.
Output (Outcome)	- Output (Outcome) recovers after modification of similar state of object or of the same state of object of the same type; - Output (Outcome) recovers after modification of different state of the same object or of the same state of different object; - Object on its own recovers its state, so there is no need to recover it.
Conditions	- Output (Outcome) recovers under similar specific condition or under condition of the same type; - Output (Outcome) recovers in the same way under different condition.
Environment	- Output (Outcome) recovers in the similar environment; - Output (Outcome) recovers in the same way in the different environment.
Resource	- Similar resource or resource of the same type is consumed to recover Output (Outcome); - Different resource is consumed in the same way to recover Output (Outcome).
Time	- Output (Outcome) recovers in the similar timeframe, at similar moment of time, or with similar temporal characteristics; - Output (Outcome) recovers in the same way in different timeframe, at different moment of time, or with different temporal characteristics.
Space	- Output (Outcome) recovers at similar location, in similar area, or along similar spatial direction; - Output (Outcome) recovers in the same way at different location, in different area, or along different spatial direction.

Table 5.　　"Stabilize" Alternatives

Object	• Function stabilizes state of similar object or of an object of the same type; • Function stabilizes state of different object in the same way.
Tool	• Object remains stable under impact from similar tool or from a tool of the same type; • Object remains stable under impact from different tool in the same way.
Action	• Object remains stable under impact of similar action or of an action of the same type; • Object remains stable under impact of different action in the similar way.
Input	• Function consumes similar input or input of the same type to stabilize Output (Outcome); • Function consumes different input in the same way to stabilize Output (Outcome).
Output (Outcome)	• Function stabilizes similar state of object or the same state of object of the same type; • Function prevents modification of different state of the same object or of the same state of different object; • Object is stabilized in needed state, so there is no need to modify it.
Conditions	• Output (Outcome) remains stable under similar specific condition or under condition of the same type; • Output (Outcome) remains stable in the same way under different condition.
Environment	• Output (Outcome) remains stable in the similar environment; • Output (Outcome) remains stable in the same way in the different environment.
Resource	• Similar resource or resource of the same type is consumed to stabilize Output (Outcome); • Different resource is consumed in the same way to stabilize Output (Outcome).
Time	• Output (Outcome) remains stable in the similar timeframe, at similar moment of time, or with similar temporal characteristics; • Output (Outcome) remains stable in the same way in different timeframe, at different moment of time, or with different temporal characteristics.
Space	• Output (Outcome) remains stable at similar location, in similar area, or along similar spatial direction; • Output (Outcome) remains stable in the same way at different location, in different area, or along different spatial direction.

Single Alternatives (SA)

Table 6.   Single Alternatives

Object	Function modifies one object at a time, one object only, or one type of objects.
Tool	Object gets impact from one tool at a time, from one tool only, or from one type of tools.
Action	• Object is impacted by one action at a time, by one action only, or by one type of actions; • Object is impacted by action only once.
Input	Function consumes one input at a time, one input only, or one type of inputs.
Output (Outcome)	Function modifies one state of object at a time, one state of object only, or one type of object states.
Conditions	Output (Outcome) is produced only under one specific condition, or needs only one specific condition to be produced.
Environment	Output (Outcome) can be produced only in one type of environment.
Resource	Only one resource is consumed, resource is consumed only once, or only one type of resources is consumed.
Time	Output (Outcome) is produced only once, at once, or at one specific moment of time.
Space	Output (Outcome) is produced only at one location, in one area, or along one specific spatial direction.

Multi-step Alternatives (MA)

Table 7.   Multi-Step Alternatives

Object	Function modifies many objects at a time, multiple objects, or multiple types of objects.
Tool	Object gets impact from multiple tools at a time, from many tools, or from multiple types of tools.
Action	• Object is impacted by multiple actions at a time, by multiple actions, or by multiple types of actions; • Object is impacted by action for many times.
Input	Function consumes many inputs at a time, many inputs, or many types of inputs.
Output (Outcome)	Function modifies multiple states of object at a time, multiple states of object, one state of many objects, or multiple types of object states.
Conditions	Output (Outcome) is produced under multiple specific conditions, or needs coincidence of multiple specific conditions to be produced.
Environment	Output (Outcome) can be produced in multiple types of environment.
Resource	Multiple resources are consumed, resource is consumed for many times, or multiple types of resource are consumed.
Time	Output (Outcome) is produced for multiple times, in multiple subsequent steps, or at multiple specific moments of time.
Space	Output (Outcome) is produced at multiple locations, in multiple areas, or along multiple specific spatial directions.

Continuous Alternatives (CA)

Table 8.   Continuous Alternatives

Object	Function modifies all objects at a time, all objects, or all types of objects.
Tool	Object gets impact from all tools at a time, from all tools, or from all types of tools.
Action	• Object is impacted by all actions at a time, by all actions, or by all types of actions; • Object is impacted by continuous action.
Input	Function consumes all inputs at a time, all inputs, or all types of inputs.
Output (Outcome)	Function modifies all states of object at a time, all states of object, or all types of object states.
Conditions	Output (Outcome) is produced under all specific conditions, or needs coincidence of all specific conditions to be produced.
Environment	Function can be performed in all different environments.
Resource	All resources are consumed, resource is consumed all the times, or all types of resource are consumed.
Time	Output (Outcome) is produced always, continuously, in all events, or at all specific moments of time.
Space	Output (Outcome) is produced everywhere, in all locations, in all areas, or along all spatial directions.

Appendix 2. "Catch Me If You Can" Strategy

Here, we describe in detail the process of development of this strategy.

Business Dilemma

Catch Me If You Can strategy is the solution to, probably, the most common dilemma the successful small businesses face:

> You should fight back against the inevitable hostile competitive acts of large competitors…

> …but you should not fight back because it would be deadly for a 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 predict[1], 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.

History remembers only those who had enough "common sense" to behave in unconventional, counterintuitive, smart way. Those who were "conventionally brave," have done nothing useful to society to be remembered.

Universal Dilemma

The dilemma "innovative business should fight back – should not fight back" could be formulated in multiple ways, for instance:

> 1. The small company's business should be successful to satisfy all stakeholders…

> …but this business shouldn't be successful to avoid confrontation with large competitors.

> 2. The small company should respond to hostile competitive acts in order to survive in the business…

> …but small company shouldn't respond to competitive acts because its resources are insufficient to sustain and win in this fight.

> 3. The small company should attract the customers of large competitor with better product in order to grow its own customer base…

> …but it shouldn't attract customers of large competitor to avoid provoking the large competitor's reaction.

> 4. The small company should be differentiated from the large competitor in order to attract customers…

> …but it shouldn't be differentiated because such differentiation attracts attention of large competitor.

> 5. The small company's product should be overtly superior to the large competitor's product in order to attract customers…

> …but this product shouldn't be overtly superior in order to avoid copycatting and other competitive acts.

These different dilemmas describe the same seemingly hopeless situation from the viewpoint of (1) business success, (2) competitive behavior, (3) customers relationships, (4) marketing differentiation, and (5) product design. Other business aspects can be also considered; this dilemma reflects in practically all of them. It means that this dilemma is "universal," affecting all aspects of small business, rather than "local," affecting only one or two aspects.

Revealing and Inverting the Assumptions

Let's check for generalizations in the five variants of dilemma showed above, and see what happens when generalizations are inverted.

Success satisfies stakeholders, but causes confrontation with large competitors

The explanation here is as follows: the success should be big to satisfy stakeholders; it is big enough to cause competitive confrontation. The generalization "only" transforms it into

assumption: <u>only</u> the big success can satisfy stakeholders, and <u>only</u> the big success "wakes up" the competition.

The inversion to this generalization is, "not only": "Not only the big success can satisfy stakeholders," which means that small success can satisfy stakeholders, too, if it later grows into the big success without attracting the competition's attention.

This consideration unfolds to us the next layer of this assumption: the success is assumed to be achieved in one area <u>only</u>. Then, the success and competition inevitably clash. Here, we deal with generalizations "the only" and "the same."

Inverting these generalizations, we get the following consideration: "Success should be achieved in many areas, so that it is summarily big, but small enough in each particular area to wake up the competitors."

Response to competitive act is the way to survive, but drains scarce resources

The explanation to this dilemma is, "the way to respond to competitive act is easy-to-comprehend, although it is resource-consuming." The generalization "only" transforms it into the assumption, "there <u>is the only way</u> to respond to competitive act, this way is easy-to-comprehend and resource-consuming."

Inversion says, "not only," i.e. "there are several alternative ways to respond to competitive act, and some of them are resource-consuming, while others aren't."

Another explanation here is, "the response should be based on competitive attack," and generalization "the same" makes it an assumption, "the response should be <u>the same</u> as competitive attack," e.g. if competitors reduce price, reduce it, too. Inversion to this assumption suggests responding in the different, not resource-consuming way.

Customers are attracted by new product, but large corporation doesn't like that

This dilemma grows on the grounds of assumption, "so many customers are averted from <u>one</u> large corporation that this corporation mentions that and reacts appropriately," which stems from another assumption, "company attracts customers in <u>only one</u> market niche."

Inversion suggests attraction of customers in multiple markets and market niches, so that each large corporation loses small portion of their customer base, while company's customer base becomes pretty large.

Company differentiation attracts customers, but also attracts attention of competition

This dilemma includes at least two unspoken assumptions, "company <u>always</u> uses <u>only one</u> differentiation; eventually, it attracts attention of competition," and "company uses its <u>only</u> differentiation to attract all the customers."

Inverting generalizations in both assumptions, we find out the following approach: company uses multiple differentiations to attract customers; each differentiation is used for short enough time, so it doesn't attract competitive attention, but customer base accumulates with time to the substantial size.

Superior product attracts customer, but is a subject for copycatting

The assumption behind this dilemma is as follows: <u>the same</u> product, <u>at the same time</u>, attracts customers and provokes copycatting. Under such conditions, it is really difficult to avoid harm from copycatting while collecting the revenue from happy customers. Moreover, it seems impossible to design product so that it is sufficiently attractive to customers while insufficiently attractive to competition. Any trade-off won't do. The unspoken generalization in this assumption is, "the same."

If we invert this generalization, we get another approach to the product superiority: there should be sequence of products, with growing superiority; each product should attract some customer base, and should be replaced with more superior product as soon as it is copycatted by competition.

Sketch of Strategy

Here, we just accumulate the ideas from previous sub-chapter, and combine them in sketchy description of new strategy:

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.

Implementation of this strategy, however, is not that simple: it is accompanied with multiple subsequent dilemmas. The strategies described below address these subsequent dilemmas, thus developing the mutually-supporting synergistic strategic system.

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. However, the "Fat Product – Lean Process" strategy successfully addresses this dilemma.

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 "Icebreaker" strategy mitigates this risk.

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. However, the "Emulate the Competitor's Strength" strategy resolves this dilemma and suggests the feasible way to withstand against the large competitors.

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. However, "Think Big, Target Small," "Win the War, Not the Battle," and "Bowling Alley" strategies address this dilemma, providing company at the same time with sharp focus and continuously expanding customer base.

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. "Go Where the Puck Will Be" strategy developed by Clayton M. Christensen suggests the proper selection of "beachhead" and the sequence for penetrating the market.

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.

"Evangelism Marketing" strategy handles this dilemma.

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.

The strategy addressing this dilemma is simply called, "Avoid Hard Blows."

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.

"Strategize Your Intellectual Property" strategy suggests the solutions to this issue.

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.

"The Bear Hug" strategy says, "Don't compete, rather partner; be kind to peer competitors," thus providing the small company with necessary resources to successfully compete with its main enemy, the large corporations dominating its market.

Appendix 3. "Fat Product – Lean Process" Strategy

Business Dilemma

One of the most important dilemmas "preventing" the small businesses from using 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 company doesn't have so much spare money and workforce.

Lack of financial and other resources limits a start-up to one major launch, to one product, especially if this product is innovative, and its development and production consumes a lot of labor, resources or time.

Revealing and Inverting the Assumptions

The major assumption behind this dilemma is, "<u>every</u> product should be individually launched." Another assumption, accompanying this one, is, "<u>every</u> launch starts from scratch; it involves a lot of mistakes and unforeseen obstacles that require significant 'debugging' on each stage of launching process, and thus every launch is effort-, resource- and time-consuming." The key generalization in these assumptions is, "every."

If we invert this generalization, we find out that "not every product should be individually launched" and "not every launch starts from scratch." This inversion, while pushed to the limit, suggests that "only one product should be launched," and "only one launch starts from scratch."

The latter suggestion hints us on the main idea: there should be all products in one, and one launch for this one product. The subsequent products should be variations of the "only one" launched before. Hence, the subsequent products would be commercialized without "launching."

This concept, although pretty logical, creates the following subsequent problem: if all capabilities of multiple sequentially commercialized products are already realized in the first product, then the competition can reverse-engineer this intention and easily reproduce it.

This subsequent problem should be resolved in the way that (a) addresses the concern and (b) creates the dilemma for competition.   These two "additional conditions" suggest the following:

1. The launched product has all features of multiple generations. This maximum set of features is already tested and debugged in the course of product launch. However, only minimum set of features sufficient for differentiation is enabled;
2. The features of next generations of product are presented in "incomplete way" and thus disabled. The purpose of components present in the first product shouldn't be obvious. These components should look like "trap" or "bad engineering"; and
3. The missing components capable of enabling the features are unobvious, but off the shelf and easy-to-add to the product without sufficient changes in the manufacturing process.

If the product is designed in this way, it creates the following trouble to potential reverse-engineers:

> The "extra" components should be copied exactly so that the product is properly copied…

> …but these "extra" components shouldn't be copied, because their purpose is unclear, they aren't used for product functioning and increase product cost.

Usually, reverse-engineers "address" this dilemma via ignoring and subsequently "trimming" the "unnecessary" components that increase cost and don't add any value.

As a result, the company that designed product in this counterintuitive way can easily, without spending sufficient effort, resources and time start commercializing the next-generation product as soon as competitors copycat the current one. The competitors who cannot uncover the intent simply "trim" all unnecessary, but costly components. Hence, they are doomed to repeatedly launch every new product. They do save money on research, but they are spending much more money in multiple launches.

The small company, naturally, spends more than "usual" time, effort and money at the initial stage of business to perform the following activities:

1. Discover multiple future generations of new product;
2. Develop "the most distant" future generation product:
   - Design "the most distant" future generation product;
   - Test and debug "the most distant" future generation product; and
   - Design the manufacturing process for "the most distant" product;
3. Determine the sequence of next generation products:
   - Determine the differentiation of each next generation product; and
   - Design the basics of marketing campaign for each next generation product;
4. Design the "latent features":
   - "Trim" the most distant product back to the previous generation products, including the first one;
   - Localize the "trimmed" components for each generation;
   - Decide which of "trimmed" components should be "missed" and which should remain in the first product; and
   - Design the changes in manufacturing process for each shift to the next generation product;
5. Develop the first product to launch:
   - Finalize design of the first product;
   - Finalize design of manufacturing process;
   - Plan the launch; and
   - Design the marketing campaign for the first product.

All this work should be done before the launch of the first product. Of course, the process of improving the product design, manufacturing process and marketing is continuous; however, all these improvements should be aligned with initial multi-generation development. Then, shift from one product to another happens fast and easy. This is exactly the moment when company receives the "return on investment" in this initial development.

Sketch of Strategy

> Don't worry, be crappy. Revolutionary means you ship and then test... Lots of things made the first Mac in 1984 a piece of crap - but it was a revolutionary piece of crap.
>
> - *Guy Kawasaki*

The brief description of this strategy looks like the following:

The company launches only one product, i.e. the first one, but this product contains features of multiple future generations in form of latent capabilities. These latent capabilities are designed so that (a) they lack some key elements to be enabled from the very beginning; (b) these key elements are "off the shelf" and can be added without significant changes in manufacturing process; and (c) they cannot be easily reverse-engineered by competition via discovering the purpose of unused "extra" components.

As soon as competitors copycat the product and start commercializing it at reduced price, the company should quickly shift to the next generation product via adding the "feature-enabling" elements to the existing product. The company immediately starts the marketing campaign focused on benefits provided by new features.

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

1. Develop the next generation products, new markets, new differentiations, etc., ahead of time;
2. Hide the future features from competition by removing 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 price war or other competitive battles.

If small company follows this strategy, no large competitor can efficiently nail it down with reduced prices. The unused extra components, although increasing cost of product, substantially reduce cost of process of implementation of next-generation products.

That's why this strategy is called, "Fat Product – Lean Process":

1. The first product contains components that will be needed in subsequent generations;

2. In every generation of product, only features of this generation are enabled, while features of subsequent generations are disabled;

3. The product is launched only once; the same manufacturing process, with small modifications, is used to produce all subsequent generations.

Since all generations of product are known ahead of time, it would be relatively easy to calculate the "reasonable obesity" – so that over-cost of product won't "overweight" the savings of "skipped" product launches.

Innovative Tools to Support This Strategy

There are two main directions to develop the new generations of any innovative product:

1. Providing better and better results: more useful outcomes, better satisfaction of customers' expectations, more convenient use, smaller total cost of ownership of product, and fewer inherent problems;
2. Satisfying larger and larger customer base: satisfaction (or participation of satisfaction) of more and more various needs, and meeting broader and broader customers' requirements.

On the other hand, as it was already stated, the "core" product should remain the same.

From "conventional" business and engineering viewpoint, these requirements imposed on the same product design seem incompatible, stretching, and even contradicting. The "Fat Product – Lean Process" strategy already proved that these requirements should be met in their entirety, without any contradictions and trade-offs. Hence, the chief engineer of

innovative company, as well as VP sales and marketing should be armed with appropriate innovative tools. These tools should show the clear ways to meet all these requirements.

It looks like the list of these innovative tools should include, but not be limited to:

1. Method of reliable forecasting of emerging trends and sequences of step-by-step improvements;
2. Approach that matches to the customers' sequence of expectations: performance, reliability, convenience, price;
3. Idea Multiplication approach that expands understanding of ways to use the initially narrow innovation;
4. Use of alternative feasible realizations of every principle of operations of innovative product;
5. Tool suggesting the efficient ways to develop the "core" product and hide the embedded, but not enabled capabilities.

Below, we briefly discuss each tool and how its use supports realization of "Fat Product – Lean Process" strategy.

Reliable Forecasting of Emerging Trends and Sequences of Step-By-Step Improvements

From business standpoint, the "reliable forecasting" means that forecasted concepts of new products will be appreciated by customers in the foreseeable future. Hence, such forecasting technique should be customer need-oriented.

TRIZ-based forecasting, aka Directed Evolution, is rather technology-oriented. It usually takes existing technological system or category of technological systems, and efficiently predicts possible future changes in these systems. This prediction, however, doesn't relate these future improvements with needs of customers. Although this approach has substantial merits to engineers, it is useless to business people.

On the other hand, TRIZ forecasting philosophy might be pretty valuable it the business world. Its fundamental principles are:

1. Evolution of artificial systems follows some fundamental, immutable laws / patterns;
2. These laws / patterns can be discovered, researched and overtly verbalized;
3. These laws / patterns can be used as reliable predictive tools to foresee the future evolution of artificial systems.

Customer need-oriented forecasting approach based on these fundamental principles was developed by author, and used in several forecasting projects, including forecast of evolution of automotive industry[2], consideration of future of advertisement industry,[3] and analysis of contemporary global crisis.[4]

Matching the Customers' Sequence of Expectations: Performance, Reliability, Convenience, Price

Christensen[5] considers the following sequence of changes in the basis of competition: performance, reliability, convenience, price. The idea of this sequence is as follows.

In any product, customers are interested in its performance, reliability of its functioning, convenience of its use, and price they pay for owning and using this product. The "conventional business wisdom" suggests that customers want "the best" in all these aspects at once. The reality, however, shows something different. At any given period of time, the attention of majority of customers is focused on one of these aspects. Customers expect – and appreciate with their money – the improvements in this aspect, and don't pay attention to

improvements in other aspects. Moreover, their attention switches from one aspect to another not chaotically, but rather is repeatable sequence.

The mechanism of this "switching of attention," or changes in the basis of competition, could be explained in the following way. In any of these aspects, customers do not expect 100% perfection, rather reasonable level of improvement for which they are willing to pay. As long as competing companies deliver improvements on this aspect in boundaries of this invisible range, customers appreciate improved products. However, when the invisible limit is achieved, any further improvement on this aspect costs more money, but does not improve customers' satisfaction. Christensen calls this phenomenon "over-delivery."

As soon as industry over-delivers on one aspect of customers' expectations, the customers' attention switches to the next one. As long as customers' expectations are ahead of "what industry can deliver," improvements are appreciated by customers' purchasing activity.

The innovative company should closely watch for customers' reaction to the product improvements, and timely switch its focus in improvements from one aspect to another. Moreover, at the early stages of evolution of innovative product company should focus its improvement efforts on one, and only one aspect: performance. Any efforts aimed at improvements in product reliability or convenience, as well as any "price reduction" policies are simply waste of scarce resources.

Idea Multiplication and Expansion of Understanding of Ways to Use Innovation

Every successful idea has multiple implementations and applications. This fact is proven throughout the entire history of technology.

The proof of another fact can be found in the history of business. In vast majority of cases, new applications and implementations to successful idea are found by people other than inventor and entrepreneur who implemented the original idea.

This fact is sad, from business point of view. All the efforts and expense of finding, proving and implementing the original idea are carried by inventor and first entrepreneur. Others, especially their competitors, are rather bystanders watching the struggle for success. When they see the success, they get already achieved results practically for free. Their thinking is free from limitations accumulated by original inventors and entrepreneurs. Hence, they are free to see new implementations and applications. As a result, they profit from the original idea, without investing in this idea too much.

This is rather emotional consideration. However, the question remains, why the original idea, in its new incarnations, does not benefit the original inventors and entrepreneurs? The answer is simple. The original idea was born in response to some real or imagined need. Then, it becomes psychologically difficult to get beyond this need, as well as beyond the first satisfactory working realization of original idea.

When psychology places a barrier to some activities, people need the aid of artificial tools. Idea Multiplication approach is a tool designed as artificial support for overcoming the barrier imposed by original understanding of need in innovation and by original understanding of how this innovation can work.

Alternative Feasible Realizations of Every Principle of Operations

Every principle of operations can be realized in multiple ways. However, list of these ways is pretty limited. Knowing all these ways from the very beginning is a powerful tool to select proper realizations and protect business from unexpected competitive realizations.

Let's consider the emerging innovation revealed in forecast of evolution of Automotive Industry.[6] Concept of emerging breakthrough innovation is, "Automatic system of vehicle driving recognizes the preset obstacles, e.g. road works." The key principle of operation of this concept is, "Vehicle driving system ahead of time receives information about preset obstacle." How the vehicle-bound system can receive such information? There are only five ways:
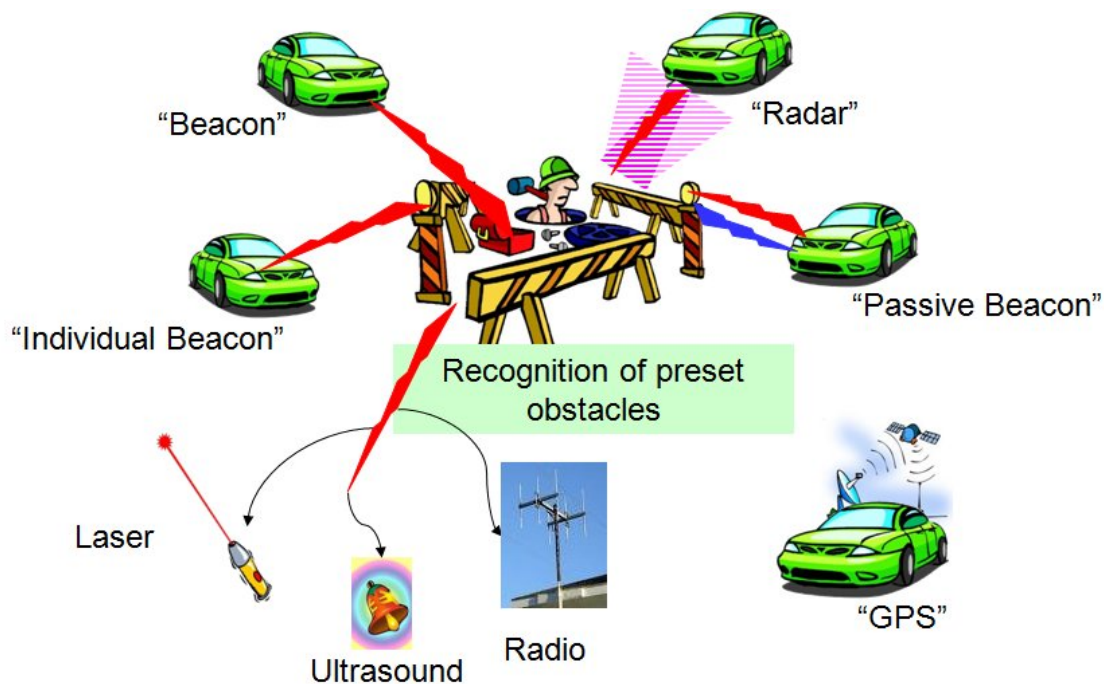
Fig. 1. Five ways to inform vehicle about obstacle

1. "Beacon": a transmitter installed at obstacle sends information, and vehicle-bound receiver gets information about obstacle and distance to it;
2. "Individual Beacon": multiple transmitters installed at the perimeter of obstacle; as a result, a vehicle-bound receiver can get 2-D picture of obstacle;
3. "Passive Beacon": one or many transmitters are installed at obstacle, but they send information only responding to the "probing" signal from vehicle;
4. "Radar": vehicle-bound transmitter sends probing signal, passive reflectors installed at obstacle reflect this signal back, and vehicle-bound receiver gets information about obstacle;
5. "Third Party" or "GPS": some third party, e.g. GPS, informs vehicle about obstacle.

There are only three ways to organize communication between vehicle and obstacle: optical, e.g. laser; acoustic, e.g. ultrasound; and radio.

Such list provides engineers of innovative company with sufficient understanding of alternative realizations, and provides for efficient design of multi-generation, multi-use products.

"Core" Product and Embedded, But Not Enabled Capabilities

The main purpose of this tool is to support efficient design of product that meets three hardly compatible criteria:

1. This product possesses features and capabilities of multiple generations ahead;
2. Design of this product at any given moment does not provide an expert with any clue on future generations features and capabilities; and
3. Extra cost of this product, at expected volume of production, is smaller than cost of launching each generation from scratch.

The key recommendations of this specialized innovative tool are as follows:

- Architecture of "maximum" product, i.e. one with all features and capabilities of the most advanced foreseen generation, can be reduced, step-by-step, to features and capabilities of all less advanced generations, including the first generation;
- Reduction of features and capabilities at each step is provided through removal of several components, some of which could be easily added to the product with minimum changes in manufacturing process;
- Features and capabilities of next generation cannot be enabled with other, similar components;
- Components that cannot be removed without causing significant changes in manufacturing process while adding them to the product design should provide only minimum clue to the expert on their purpose; they should rather look like remnants of failed attempt of improvement;
- The cost of these extra components multiplied by expected volume of production of current generation should be limited to expected cost of launch of new generation product from scratch

Let's, for instance, consider the vehicle-bound system for recognition of preset obstacles. First of all, we need to categorize the foreseen alternatives as sequential generations of product. The sequence is determined by ascending complexity and growing satisfaction of customers' need in safety. On the other hand, we need to consider this evolution jointly with evolution of obstacle-bound equipment.

The brief analysis shows that sequence of evolution of vehicle-bound equipment is as follows:

1. GPS receiver
2. Receiver from one beacon
3. Receiver from multiple individual beacons
4. Transmitter of probing signal with receiver from passive beacon
5. Radar (transmitter with receiver of reflected signal).

Accordingly, the obstacle-bound equipment will evolve in the following sequence:

1. Information to GPS
2. Single transmitter (beacon)
3. Multiple transmitters (individual beacons)
4. Waiting transmitters controlled by receiver of probing signal
5. Reflectors for radar.

Design of vehicle-bound equipment begins with the most advanced system, radar. This design includes:

Table 9.   Components Used in Different Generations

#	Component	Generation
1.	Power supply	1, 2, 3, 4, 5
2.	Transmitting antenna	4,5
3.	Receiving antenna	1, 2, 3, 4, 5

4.	Receiver	1, 2, 3, 4, 5
5.	Transmitter	4, 5
6.	Block of determination of distance to obstacle	2, 3, 4, 5
7.	Block of determination of size of obstacle	3, 4, 5
8.	Block of processing signals from multiple transmitters	3, 4
9.	Block of synchronization between transmitter and receiver	5

Although designs of components are different for different generations, one can analyze these designs in the same way. As a result, the architecture of product can be developed at multiple systemic levels. Based on this architecture, the product and all its generations can be designed.

Appendix 4. "Icebreaker" Strategy

Business Dilemma

The Icebreaker strategy deals with the following business dilemma:

> 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.

If this is the case, the company needs the strategy that provides it with fast and easy access to the majority of customers, while competitors don't have such access.

The dilemma itself is based on assumption that company immediately commercializes innovation "as it is." Then, of course, competitors copycat the innovation, especially if it is simple, as soon as the company proves that customers really like this innovation. Then, the competitor possessing more capacity, better distribution channels and better recognition in the marketplace easily gets larger market share. If there are several larger competitors, the small company has no chance to grow successfully on this innovation.

First, I'd heard this dilemma from Craig Wadham at TRIZCon'2000. He described the situation: his company invented the simple "upgrade" that dramatically expanded capabilities of rapid prototyping machines. New capability was needed a lot by many industries, but nobody could provide it. Now, this "dream" could come true. There was the only problem that prevented implementation: the idea was so simple that any competitor with larger capacities and better distribution channels could easily "steal" the success. I facilitated him in situation analysis. He was inventive enough to proceed further on his own.

A couple months later, I faced the same dilemma in my consulting project. I discovered an efficient, but very simple innovation for my client. The "upgrade" could be made by anybody. Here, I had to resolve the business dilemma myself, before suggesting the "engineering" idea. This was my first attempt in discovering the business strategies.

Revealing and Inverting the Assumptions

There are three distinct assumptions behind this dilemma:

- Company implements the <u>complete</u> product, although <u>only portion of it</u> is innovative;
- Implementation of new product is <u>one inseparable</u> act; and
- If product is simple, then <u>everybody</u> can copycat this product and implement <u>it in the same</u> simple <u>way</u>.

First, we should invert the key word "complete" in the first assumption to get an idea of company implementing only simple upgrade rather than the entire complicated product.

Inversion of the second assumption's generalization "inseparable" suggests separating the implementation into several, at least two, acts. The first implementation act should covertly develop the conditions for flawless second act of mass-implementation of the product.

Inversion of key word "everybody" in the last assumption leads to the idea that only some companies can produce and implement the new product.

Sketch of Strategy

Start-up company should implement the "upgrade" that transforms the "old," unsatisfactory product into the "new" product via "plug-and-play" installation process. The "upgrade" should, ideally, fit all most popular brands of "old" products, thus providing the company with large market of owners of "old" products.

Implementation of a new, simple "upgrade" should be split into a sequence of operations. Part of these operations should be designed into the "first implementation" in the way that overtly satisfies some need of customers or intermediaries who can serve as the distribution channels at the second stage of implementation. This "first implementation" should also provide the covert capabilities for simple implementation of the second stage. In this way, the "first implementation" serves as a "vehicle" for fast and flawless "second implementation."

The "first implementation" could be run either by the same company or by another business entity involved in some overt or covert relationships with the company.

Innovative Tools to Support This Strategy

To efficiently split the product, its use and its implementation into separable components, the entrepreneur needs a convenient tool for analysis of processes. There are two such tools available:

- Functional cause-effect analysis, and
- Flowchart cause-effect analysis.

Both tools break up the complex processes or situations into individual operations and cause-effect relations between them. Visual representation of models produced by these tools provides for easy comprehension.

As a matter of fact, these tools are two "faces" of Comprehensive Innovative Model[7]. The Comprehensive Model reflects the following aspects of real processes:

1. Any situation or process consists of individual "operations," i.e. changes in states of some objects, flows, energy or information;
2. These changes in states:
    a. Happen is specific sequence in time;
    b. Are connected through cause-effect relationships, i.e. happening of some changes create the conditions for happening or not happening of other changes; and
    c. Are produced by some "actions" (functions), and are conditions for happening of other actions.
3. The actions that produce changes in states, in the similar way:
    a. Happen is specific sequence in time;
    b. Are connected through cause-effect relationships, i.e. happening of some actions create the conditions for happening or not happening of other actions; and
    c. Produce changes in states, and are triggered by other changes in states.

Two "competing" models, i.e. flowchart cause-effect model and functional cause-effect model, in different ways represent the Comprehensive Model. If we use flowchart, we show the outputs, i.e. states of components, while assuming the actions that produce next outputs from previous ones. If we use functional model, we consider the actions (functions) and assume the outputs that produce these actions and are produced by actions.

For instance, the same story about problem with skeet shooting is described in two different ways. The story is simple. Skeet shooting is the sport many people admire. However, broken clay pigeons litter the ground at shooting range. View of littered ground makes customers unhappy. It would be nice to clean shooting range on regular basis, but labor is too expensive.

First, this story is represented by functional cause-effect model:

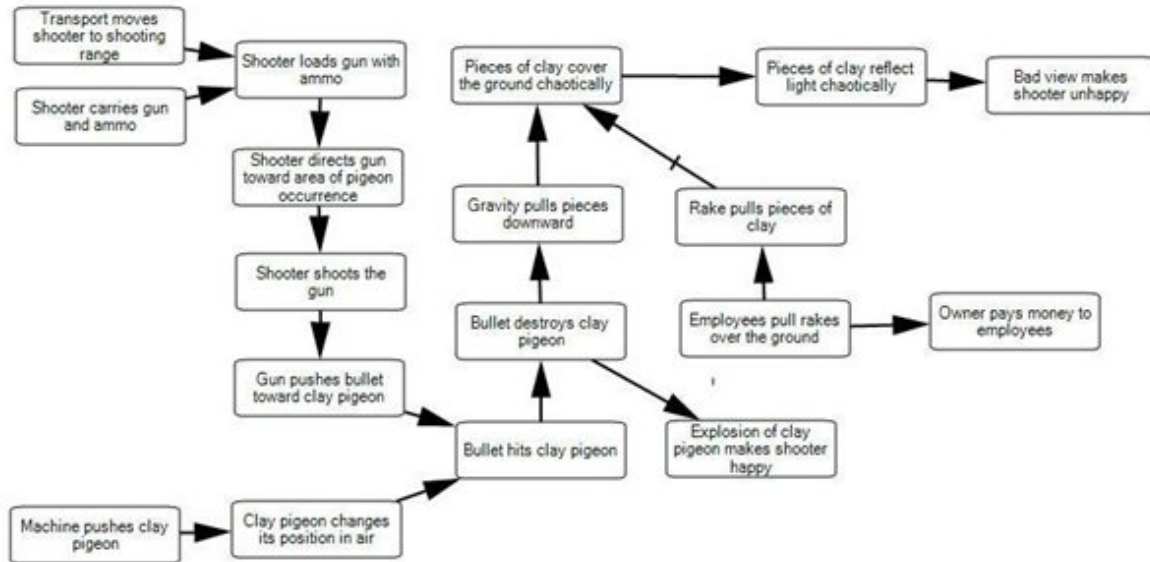**Fig. 2. Functional Cause-Effect Model of Situation**

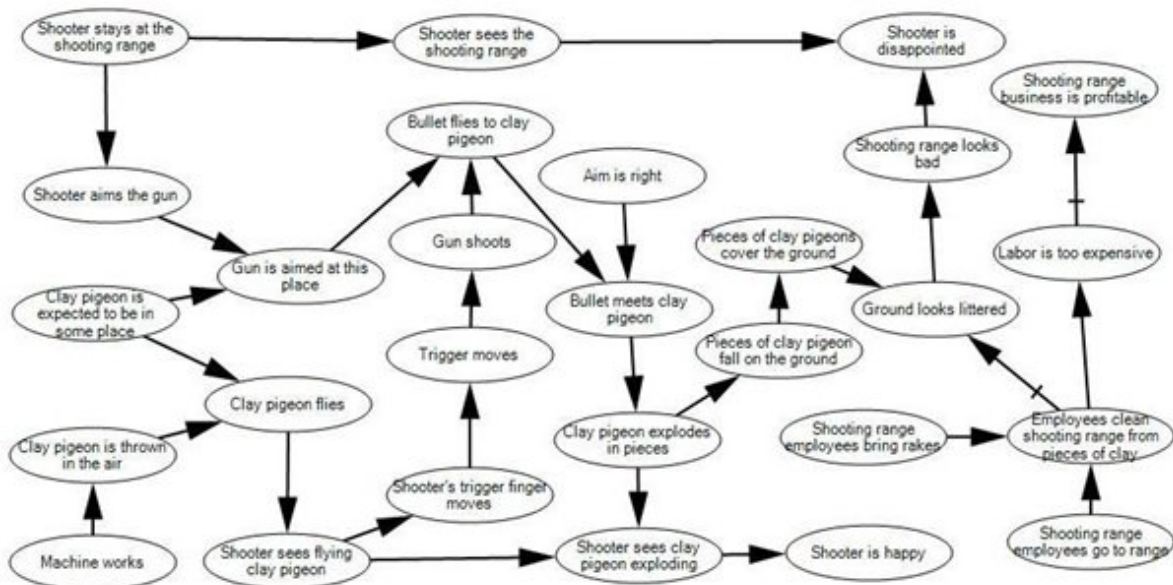Then, it is represented by flowchart cause-effect model:

Fig. 3. Flowchart Cause-Effect Model of Situation

Both models provide not only the entire story in detail, but also show the relationships between different "operations" involved in this story. As a result, these models provide much more information than just textual description.

Since these models are visual, it is easy to use them for efficient splitting of "indivisible" process of implementation or use of new product. That's why this tool is so important to entrepreneur who decided to use the Icebreaker strategy.

Let's imagine for a moment an entrepreneur would decided to implement the bullet-free skeet shooting. He invented the way to install a small digital camera in the rifle bullet so that it checks if the rifle barrel is aligned with flying "pigeon" in the moment when customer pulls the trigger. This innovation, with rapid growth of electronics miniaturization, is very simple to implement – and even simpler to copycat.

The entrepreneur assumes that this innovation will be very profitable to the owners of shooting ranges. First, there is no need to clean the shooting range from broken fragments and shells. Second, the "pigeons" are not damaged, and can be reused.

Moreover, such innovation makes skeet shooting available to the customers all year around, because it could be used both indoors and outdoors. Indoors skeet shooting can use optical images of "pigeons" instead of real plastic or clay discs. This activity can attract much more customers, because "shooting" is not associated with recoil, noise and dangerous weapons. In this way, skeet shooting sports can become global, because it might be widespread even in the countries with strict gun control.

All this consideration shows that such innovation provides the entrepreneur with huge business opportunity. But, at the same time, its relative simplicity attracts multiple competitors who can easily copycat the idea and steal the market.

The cause-effect models suggest the following solution of "partial implementation": finish the system functioning not at the stage "registering of proper hit," but at "aiming and shooting at pigeon" stage, implement this partial solution without attracting the competitors' attention, and only then implement the "comprehensive solution."

> Gun for bullet-free skeet shooting uses rifle laser sight. This sight switches on by switch mechanically connected with trigger. When customer "shoots," the laser sight shows where the bullet would hit. The gun shoots blank cartridges to provide for comprehensive simulation. The "pigeons" should be made so that they transform laser beam into visible illumination. This innovation provides opportunity for indoors skeet shooting. On the other hand, is not that easy to copycat, because it involves special design of "pigeons." Hence, the entrepreneur can organize indoors skeet shooting ranges, and sell his equipment to indoors shooting range owners without significant risk of copycats.

> Design of the system, however, should include some "extra components" that prepare easy switch from laser-shooting to camera-shooting. Camera-shooting provides even more new opportunities: electronic registering of results, competition, shooting at optical images, multi-shooter competition (when multiple customers shoot at the same "pigeon" or optical image).

> When laser-shooting systems are distributed widely enough, the company can start commercializing the camera-shooting equipment. Only shooting ranges equipped with company laser-shooting equipment can easily replace it for camera-shooting.

Competitors who copycat the laser-shooting equipment, most probably, "shave" the unnecessary components. As a result, transfer to the new copycat will be more complicated than transfer to the new generation of original innovation.

Could this hint be found without any visual situation modeling? Of course, it could. However, with this tool the probability of finding this solution increases enormously. This is the purpose of supporting innovative tools: increase probability of getting new result that is totally unexpected to competition.

Appendix 5. "Emulation" Strategy

Business Dilemma

This strategy was developed as a response to the following dilemma of contemporary competition:

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

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

Usually, the large competitors provide their customers with very attractive advantages, such as low price, broad selection, convenient distribution, etc. Small companies, on the other hand, have their own advantages, such as "being community-oriented," handcrafted quality, etc. However, small companies cannot reproduce exactly the benefits provided by their large competitors due to the different economy of scale, available resources, brand names, etc. The customers who prefer the benefits provided by large companies to the benefits provided by small companies "vote" with their dollars for large companies. Does the small company have a chance to compete?

Revealing and Inverting the Assumptions

A large competitor has strengths different than those of a small company. Large competitor's strengths are more appealing to the customers than strengths of small company, and small company cannot – for multiple reasons – repeat (copycat) the competitor's strengths. Small company's strengths are "weaker," less appealing to the customers.

Such dilemma is based on one assumption, "Competitor's strength can be reproduced <u>only</u> in the way the competitor has created it," with generalization "only."

Inversion of this generalization, "NOT only," suggests different assumption, "Competitor's strength can be reproduced NOT only in the way the competitor has created it." This assumption means that:

- Competitor's strength produces some important benefits for customers;
- There are multiple ways (approaches) to produce the same benefit; and
- Some of these approaches are available and affordable to the small business, while others aren't.

The new assumption suggests producing the same benefits in different ways, available and affordable to the small business.

Sketch of Strategy

Successful strategy that addresses this dilemma can be formulated in the following way:

Large companies always use the scale advantages to offer their customers some benefits that cannot be, in the same way, provided by a small company. If a large company's benefits are more appealing to the customers, the small company's customer base is easily eroded. In this case, the small company should achieve similar appeal in different way, using available and affordable resources and approaches, while preserving the unique benefits only small company can provide.

This strategy is called "Emulation" because it suggests emulating the competitor's strength rather than copying what competitor is doing. For "Emulation thinking," the entrepreneur needs to think "outcomes," i.e. "what outcomes I should provide to the customers to attract them," and "resources," i.e. "which available resources I can use to produce these outcomes." Entrepreneur shouldn't think "how can I copy what my competitors are doing," because it is exactly what a small company cannot afford.

Emulation of competitor's strength is successful only if it is based on knowledge of the mechanism and rules by which competitor provides these benefits; then, reformulating these mechanisms and rules in terms of small company's capabilities, the entrepreneur can achieve the same results in different ways.

Innovative Tools to Support This Strategy

Emulation means "producing the same outcome in different way, with available resources." Hence, the entrepreneur who decides to use this strategy could benefit from the following innovative tools:

1. Outcome analysis
2. Functional / Flowchart analysis
3. Search for alternatives
4. Feature transfer / Hybridization
5. Revealing the latent resources

Outcome analysis[8] is based on premise that customers buy products or services to accomplish important outcomes. In case of Emulation strategy, it is important to reveal the outcomes that differentiate the competitor.

Use of Functional / Flowchart analysis is pretty obvious. Entrepreneur should reveal the mechanism the competitor uses to provide their customers with revealed unique outcomes.

Innovative tool "Search for alternatives" is based on applying the Innovative Principles (Operators) to the functions / outputs describing the mechanisms of realization of differentiating outcomes. As a result, entrepreneur can consider wide variety of alternative ways of accomplishing the same outcomes.

Innovative method "Feature transfer / Hybridization"[9] provides even more efficient way to reveal the alternative ways to accomplish the differentiating outcomes. This approach suggests finding the ways to transfer the "unique" competitor's capabilities to the resources available to the strategic entrepreneur's company.

The last, but not the least innovative approach useful to the entrepreneur-strategist implementing the Emulation strategy is "Search for latent resources." This approach provides unique view at what is really available to the small business.[10] More often than not, entrepreneurs don't see 80% of resources really available to them. Innovative entrepreneur-strategist can transform the resource vision and systematic way to reveal latent resources into the bonanza.

Appendix 6. "Think Big, Target Small" Strategy

Business Dilemma

The start-ups who envision only one or two opportunities for their business should, definitely, clearly determine if those opportunities promise enough income to cover the costs of running the business. On the other hand, the entrepreneurs with huge ambitions who foresee a lot of opportunities for their innovation usually face the following dilemma:

> A small company should address multiple target customers with multiple products in order to accumulate the substantial success…

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

Revealing and Inverting the Assumptions

The explanation of this dilemma is, "Company should be focused and concentrate its resources on the product and market to accomplish its plans." Generalizations modify this explanation into the assumption, "Company should stay all the time focused and concentrate all its resources on one product and one market to accomplish its plans." If this assumption is accepted, it immediately leads to the conclusion, "the market should be huge, and product should provide substantial profit." This is what the investors really like to see in company's presentation. They avoid, however, admitting that such thinking leads to the new dilemma:

> The small company should focus on one huge category of target customers to concentrate its resources and achieve a great success…

> …but small company shouldn't focus on one huge category of target customers, because large competition can easily "steal" this customer base leaving the small company without an opportunity to succeed.

This dilemma is tougher to resolve, because the hostile competitive act is absolutely inevitable. This is just the nature of business, period. Hence, the assumption is inherently wrong.

If we invert this assumption, especially its generalization "all the time," we get absolutely different understanding: "Company, at any given moment, should stay focused and concentrate all its resources on one product and one market at a time, but should move from product to product and from market to market to accomplish its plans." It means, company should accumulate its big success from multiple small successes.

Sketch of Strategy

Geoffrey A. Moore suggests starting by concentrating all company's resources, efforts and attention on one, relatively small, well-defined category of target customers united by "must-have" need in company's innovation. He described this "must-have" condition as follows[11]:

> "To cross the chasm you must target a market segment defined around a must-have value proposition… In the most abstract sense, there are three sources of a must-have condition:

> (1) It enables a previously unavailable strategic capability that provides a dramatic competitive advantage in an area of prime operational focus.

(2)　It radically improves productivity on an already well-understood critical success factor.

(3)　It visibly, verifiably, and significantly reduces current total overall operating costs."

If company's innovation really addresses this must-have condition, the customers will gladly pay for it. This is the ultimate business success. Then, this success can be expanded by moving to the new market segments, again with well-attuned messages. Every move is characterized by high concentration of company's resources, by strong focus on delivering on customers' expectations. This strategy is more efficient than addressing the huge market with a "one size fits all" mediocre message.

Innovative Tools to Support This Strategy

While focusing on small category of customers with must-have condition, the strategically-minded innovative entrepreneur might need a support of the following tools:

- Outcome analysis
- Analysis of contradictions
- Search for latent resources

Outcome analysis suggests the specific important, but underserved outcomes, and provides hints on the category of customers with really "must-have" need. Without detailed, structured analysis of outcomes, the work of finding such category becomes a wild guesswork. Sometimes, it comes out that such customers were never before united by marketing experts in one "category." This fact makes such a search, if unsupported with innovative tools, next to impossible.

If one looks at the definition of must-have condition, it becomes clear that customers in this condition typically face at least one contradiction, "We do something conventional to accomplish the important outcome, but we either cannot accomplish it, or this conventional way of accomplishing is cumbersome and too costly." An innovative entrepreneur needs to conduct the "reverse analysis" to discover what contradiction has been resolved with his innovation, what assumptions prevented the target customers from finding this solution long ago. Then, he can develop the marketing campaign by making these assumptions overt and ridiculing them, thus talking to the customers in terms of their deep beliefs that turned wrong and suggesting the solution to their real problem.

Implementation of any conceptual solution to the customers' problem can be provided in multiple ways. The same result can be achieved through multiple principles of operations, and the same principle of operations can be realized in multiple ways with involvement of different sets of resources.

For example, the described above bulletless skeet shooting system with gun-bound hit-registering sensor can be realized through the following principles of operations: optical (in visual range of light wavelengths), ultraviolet (in UV range), heat-registering (in infrared range), radio (in different ranges of radio-waves), ultrasound, and sound. In every case, multiple physicality realizations can be employed.

How important is this consideration to the customers and end users? Every realization incurs initial cost of production, cost of installation, and operational cost of everyday use. This cost is not only financial, but rather "total cost of ownership," including convenience, reliability,

accuracy, etc. Customers and end users never represent the uniform mass. They could be rather divided into multiple sub-categories, with different needs, expectations and cost-sensitivity. As a result, the entrepreneur cannot expect to satisfy all of them with "one-size-fits-all" solution. It would be more reasonable to address different sub-categories with physically different (although conceptually the same) products. In implementation of innovative solution, the entrepreneur needs to find the resources for appropriate realization of products that fit different sub-categories of customers; he also needs to find the latent resources available to each sub-category of customers, and exploit these resources to further reduce costs and increase benefits. Hence, the need for supporting tool "Search for latent resources."

Appendix 7. One More Case Study to "Think Big, Target Small" Strategy

Black Case Study: Security Device for Convertibles

The innovative project on new vehicle security systems produced one "side-effect," a novel improvement of security of convertible vehicles. It is well-known that convertibles represent a very attractive and, at the same time, a very easy target for car thieves. The goal of this innovation was not to provide the 100% security, because such a thing doesn't exist in the real world, but rather to make stealing process more complicated and thus less attractive to "opportunistic" criminals.

The concept was as follows:

When a driver leaves the car, he pulls the driver's seat forward as far as possible, tilts the seat's back forward, too, thus blocking access to the steering wheel, and locks seat and back in this position. When the driver enters the car, he moves seat and back in the original position. A thief has to pick a seat / back lock before he can hotwire the ignition and drive away – as opposite to "conventional" jump in, hotwire and drive.

Implementation of this concept was pretty straightforward; already running cars could be easily upgraded at any body shop. The concept itself had several stages for improvement, thus providing long-term opportunity. A similar solution could be used in non-convertibles, too, to some extent improving their security.

Moreover, for convertibles this concept solved one more problem: it prevented overheating of leather seats under the hot sun.

Why did we suggest focusing on convertibles, rather than addressing the entire car market? The reason was simple: out of the entire car owners' market, this innovation provided the most benefits to owners of convertibles. Hence, it was much easier to formulate the well-tuned marketing message, and gain the real success in this market segment, only then expanding it to other segments.

We brought all these considerations to the client's management; out of all suggested innovations, this one seemed the most attractive: simple implementation, well-defined target customer and his burning (pardon the pun) needs, clear and loud marketing message… However, the concept was rejected. The reason? "The size of market is too small to justify the effort." I assume the car thieves would be more than happy.

Appendix 8. "Win the War, Not the Battle" Strategy

Business Dilemma

This strategy was used to address another aspect of business dilemma,

> 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.

It was extracted from experience of North Vietnam fighting against America. It is a well-known fact that small Vietnam managed to win the war against giant America without winning a single battle.

Revealing and Inverting the Assumptions

As soon as we accept the multi-market approach of "Think Big, Target Small" strategy, the "conventional" notion that "success = huge market share" comes to a play. This notion, although correct for the large companies, in case of small company unfolds another dilemma:

> The small company should gain significant market share to be successful…

> …but it shouldn't gain significant market share to avoid looking successful and thus attracting the competitive attacks.

We already found out that attracting the attention of large competitors is the last thing the small company should do if it wants to survive in the hostile marketplace.

This dilemma is based on the assumption that "size of customer base is defined by size of <u>single</u> available market segment and market share the company can gain." Here, we need to invert the generalization "single"; if we assume that there are many market segments available to the small company, then small market share in each market segment would accumulate into a sizeable customer base.

Sketch of Strategy

The "Win the War, Not the Battle" strategy means winning only small market share in each market segment, thus "losing" the battle, while quickly shifting to the next market segment until the accumulated customer base provides company with stable position in the market. The "allowable" market share is defined by the following rules:

- The small company just began attracting the competitive attention;
- The small company isn't yet worth to "hit hard" by large competition; and
- The market share is sufficient to demonstrate the momentum of success.

Within each market niche, the company should stay below the competitive radar. As soon as competitive "copycats" hit the market, the small company should quickly shift its marketing efforts to the new market segment, while keeping the current one as a "cash cow" until the sales in this segment begin to decline.

By "grabbing" small market shares sequentially in every segment, company can gain reasonably large customer base without being involved in tough competitive fight.

At some moment, the multi-segment positioning of company renders company tough for "fair competition"; since then on, company's further growth is unstoppable. Company that never won any battle, i.e. significant market share in any market segment, wins the entire war, i.e. becomes invulnerable to any hard competitive blows.

Innovative Tools to Support This Strategy

To win the war and not to be fixated on any "intermediate" battle, the strategically-minded entrepreneur should have clear vision focused on the ultimate goal. On the other hand, he should possess good peripheral vision to efficiently survive every battle, to avoid all the traps and dead ends. What innovative tools support such unique vision? Probably, the most important "eyeglasses" for this purpose are called, "Ideal Vision." This name, especially word "Vision," has nothing to do with optics, pardon the pun.

"Ideal vision" is an idealized image of situation-at-hand without the problem-at-hand. This approach was suggested by Henry Altshuller[12]:

> "The 'Ideal Machine' is a fundamental concept of inventive methodology. Many 'difficult' problems are difficult only because they have requirements contradictory to the central tendency of technical system evolution: the desire to be like 'thin air.' Almost all thematic lists of problems are colored with the words, 'Develop a device that…' However, very often there is no need to develop a device – the essence of the problem is to provide a required function 'without any *thing,*' or almost 'without any thing.' <u>An ideal solution is a machine that does not exist – with the same result as if a machine *did* exist</u>."

Yes, of course, the Ideal Vision sounds way too extreme. But take the Ideal Vision as your lighthouse and move toward it as much as you could, and your solution to the problem would be the most efficient and the easiest to implement at the same time.

The most "extreme" formulation of Ideal Vision is, "Nothing changed in the situation-at-hand, but problem disappeared," or, "Situation improves on its own, without any intervention, and doesn't produce any undesirable side effect." It would be nice, wouldn't it? This vision is worth striving for.[13]

In case of winning the war, not the battle, the Ideal Vision is, "Company becomes stable and profitable in marketplace." Hence, everything possible (and even impossible) should be done to achieve this ultimate goal. As one can see, there is nothing in this Ideal Vision formula that says about "an eye for an eye," "winning the competition," "beating the competitor to dust," "increasing the market share," etc. These "local achievements" are not that important to achieve the ultimate goal; the ultimate goal is of paramount importance. This Ideal Vision should be the mindset of innovative entrepreneur, and no "hurt emotions" should cloud his mind.

The strategically-minded entrepreneur should correlate each and every planned action with ultimate goal: does this action bring his business closer to this goal, or it is just a distraction that leads to nowhere. Sometimes, it is even much better to drop the "opportunity" than to take it. Only clear vision of ultimate goal helps distinguishing the "solid" opportunity from "empty" one.

Appendix 9. "Bowling Alley" Strategy

Business Dilemma

The "Bowling Alley" strategy, together with "Think Big, Target Small" and "Win the War, Not the Battle" strategies, addresses the dilemma,

> The small company should address multiple target customers with multiple products in order to accumulate the substantial success from small successes…

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

This strategy takes into consideration an important issue: how to keep existing customers while running from competition to the new market segment.

Revealing and Inverting the Assumptions

If one follows the "Think Big, Target Small" and "Win the War, Not the Battle" strategies, then there is a risk of losing the already accumulated customer base while trying to acquire the new one. This "risk" is based on assumption that "customer base should be acquired with the only product." As you remember, the "Fat Product, Lean Process" strategy inverts this assumption, thus negatively answering the question, "Should we leave already acquired in current market segment customer base to the competition while moving to the new market segment?"

This consideration suggests the following conceptual approach: innovative business should attract new customers with products already tested by market, while keeping the already acquired customer base with next-generation products. In this way, company continues unfolding the next-generations features of its product and runs away from any competitive attacks.

Sketch of Strategy

The Bowling Alley strategy described by Geoffrey A. Moore explains this idea in the following way:[14]

> The purpose of the bowling pin model is to approach niche market expansion in as leveraged a way as possible, to bowl toward the tornado. Each niche… requires its own whole product to be fully complete before it can adopt the new paradigm. At the same time, it finds it much easier to buy in if vendors can supply references from an "adjacent niche," one within which it already has established word-of-mouth relationship.

> "If we go after niches at random, driven solely by sales opportunity, there is no such leverage at all. Each whole product must be built from scratch, and it is only chance if some prior customer is referenceable. But look what happens when we build this principle into the core of our market development strategy:

> The head bowling pin in this model corresponds to the beachhead segment, the one that was the complete focus of the crossing-the-chasm effort. Every other pin is "derived" from this head pin."

Bowling Alley Market Development
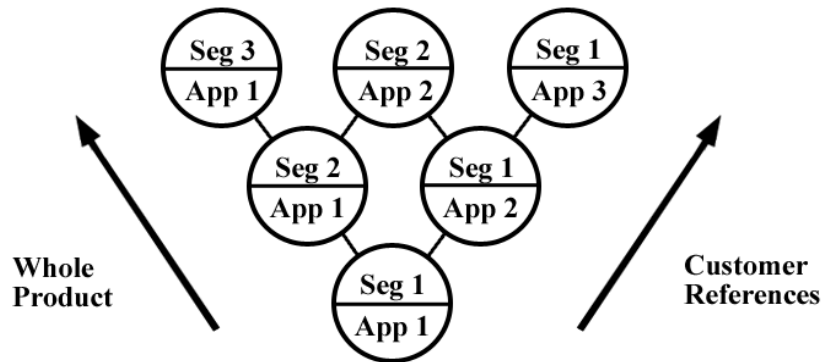
Fig. 4. Bowling Alley Market Development

Hence, in the current market segment company should bring the next-generation product to its customers, thus avoiding the pricing war with large competition over the "old" product; at the same time, company brings the "old" product to the "adjacent" market niche, using its current customer base as a valid reference.

"Bowling alley" strategy in improved version also contains the rules that define timing for shifting to the next level:

1. Move to the new category of target customers when you got the pre-determined market share with your current customers:

    a. enough to prove the success, but

    b. not-yet-enough to appear on competitors' radar screens

2. Move to the next-generation product when competitive copycats hit the market.

This strategy also resolves another dilemma: how to demonstrate the multiplicity of products and markets to the investors – and not being considered unfocused.

Innovative Tools to Support This Strategy

In development and implementation of the Bowling Alley strategy, the following innovative tools seem to be very helpful:

1. Idea Multiplication
2. FutureMapping
3. Outcome analysis

The Idea Multiplication tool is helpful for finding multiple alternatives and purposes to each realization of innovative product. Use of this tool provides entrepreneur with understanding what neighbor target customer category look for while expanding the market.

FutureMapping approach is efficient in finding multiple step-by-step future generations of product.

Outcome analysis is very useful in revealing the target customers with must-have condition.

Together, these tools support development and implementation of this strategy.

Appendix 10. "Go Where the Puck Will Be" Strategy

Business Dilemma

The company's marketing decision-making faces the following dilemma:

> A small company should have multiple opportunities to realize the multi-product, multi-market approach…

> …but a 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.

Of course, when company leadership envisions only one opportunity, this dilemma doesn't exist; however, there is always high risk that this opportunity isn't good for this company. Strategically thinking leaders usually envision multiple opportunities, but then they face a tough decision: testing opportunities is pretty expensive, while resources are limited, so decision-maker has to blindly select one or two at his own risk.

Revealing and Inverting the Assumptions

The assumption in this business dilemma is, "<u>all</u> opportunities seem equal before they are tried and compared, so it is impossible to select the best one without trying it."

Inverting the generalization "all," we can get an idea that some opportunities don't seem equal to others, that there are some criteria one can use ahead of time to select better, more promising opportunities.

Sketch of Strategy

Business portion of the strategy intuitively used by many smart leaders is described in "The Innovator's Solution."[15] 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. They provided the criteria of discovering such position. Companies in the value chain that manage to "skate where the money will be" and "eat their way up the value chain" enjoy the growth unbelievable to others in the industry. The key is to find the not-yet-good-enough, but performance-defining components and operations in the value chain, integrate them into the company's business and leverage them. Those companies who produce such components in conventional way are more than happy to get rid of them, because "it is not their core competence" and because getting rid of assets and costs is good for their finances and stock prices.

Another side of this coin, however, is not described in "The Innovator's Solution": 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.

This job requires a lot of innovative capabilities; otherwise, the expected "benefits" turn into "liabilities."

Innovative solution to the industry trouble should be a proprietary "know-how" rather than a cost-reduction one. First, the root cause of "why this trouble is a trouble" should be discovered, down to the technological and social issues. Then, the challenge should be formulated as follows:

We cannot improve this situation in the traditional way; conditions that created this situation are unavoidable. Changes that every expert in the industry suggests produce no effect. What can we do to achieve the desired outcome, using what we have at hand?

Every time when company finds itself in the "performance-defining, but not-yet-good-enough" position in the value chain, the experts suggest the "conventional" approaches such as "increase the accuracy of manufacturing and improve the manufacturing culture." However, the very reason why the company's product is "not-yet-good-enough" is because the "conventional" approaches don't work anymore. All efforts and expenses cannot improve the desired outcome.

The only way to get out of this "value-chain trap" is innovating, finding the non-conventional solution to achieve the needed result. The solution an expert "in his right mind" would never think of because it is "stupid and crazy." This solution provides the company with unbelievably high margins. On the other hand, the "stupidity and craziness," to large extent, shields this solution from copycatting.

However, such solutions must be kept "proprietary," because they are usually so simple that any competitor can repeat them. The company should impose strict security requirements on all employees, including executives who sometimes love to "show up" in front of journalists and TV cameras.

The bad news is, it is impossible to keep these high margins forever. As soon as a company product becomes "good enough," the inevitable commoditization begins, and company should vigorously search for the next area "where the money will be," especially upward in the value chain; acquisition of this new activity, however, should be preceded by new innovation.

Innovative Tools to Support This Strategy

Development of the "Go Where the Puck Will Be" strategy could be supported with the following innovative tools:

1. Outcome analysis
2. Analysis of Contradictions
3. Transfer of solutions

Outcome analysis in this case should be specifically focused on revealing the "not-yet-good-enough," but performance-defining outcome.

Analysis of Contradictions is essential in finding the counterintuitive, innovative solutions that significantly improve performance in revealed outcome without substantial increase in cost.

Transfer of solutions has been originally described by Henry Altshuller in ARIZ-85C:[16]

"An innovative idea not only solves the particular problem, but also provides a universal 'key' to many other analogous problems. The purpose of Part 8 [of ARIZ] is to maximize the utilization of resources unveiled by the solution concept you have found.

8.1. Define how the super-system that encompasses the changed system should be changed.

8.2. Check whether the changed system or super-system can be applied in a new fashion.

8.3. Apply the solution concept for solving other problems:

- Formulate a general Solution Principle.
- Consider direct application of the Solution Principle to other problems.
- Consider applying the opposite Principle to other problems."

Here, transfer of solution is more focused: the entrepreneur should seek for similar problems "up the value chain." If such problems are revealed, and solution can be applied to them, then "eating the way up the value chain" becomes much easier.

Appendix 11. One More Case Study to "Go Where the Puck Will Be" Strategy

White Case Study: Diesel Engine Value Chain Competition

Note: Although this story is a pure fiction, it is based on real smart solutions to the tough problems. Any resemblance to the actual events, places or names is purely coincidental.

Introduction

When American automotive industry decided to equip the heavy trucks with diesel engines, the appropriate value chain had been developed (from top to bottom):

1. Truck OEMs

2. Diesel engine manufacturers

3. Main diesel components manufacturers

4. Parts and assemblies manufacturers

One of the branches of this value chain was devoted to the high-pressure fuel pumps. This story depicts evolution of this value chain branch.

For a long time, this branch was a bottleneck to mass-production of diesel trucks. The reason was so small that most historians easily miss it, and then cannot explain why so obvious an idea of using diesel engine for heavy trucks was delayed for so long time.

This reason could be explained as follows:

Every diesel contains a fuel pump that pressurizes the fuel up to 30,000 psi to inject it into the cylinders during the compression stroke. There is one plunger-and-barrel assembly in the pump per each cylinder. This assembly must have a very small gap between plunger and barrel, otherwise fuel cannot be pressurized.

This critical condition is provided by the following means:

1. External surface of plunger and internal surface of barrel are very smooth

2. Both plunger and barrel are "round," i.e. in any their cross-section, diameters measured in different directions have very small variation

3. Both plunger and barrel are "cylindrical," i.e. diameters measured in different cross-sections have very small variation

4. The difference between the internal diameter of barrel and external diameter of plunger is smaller than doubled tolerated gap

The former three requirements are individual, i.e. imposed on plunger or barrel separately. They are met with capabilities of machines that produce plunger and barrel. The latter requirement, however, is imposed on the pair, i.e. on both plunger and barrel. Two otherwise independent manufacturing processes should be perfectly matched. As a result, improvement of machinery allows relatively easily meet first three requirements, while the fourth one calls for substantial improvements in corporate and manufacturing culture. At the times when this story started, even Germans, with their highly respected manufacturing culture, discipline and

accuracy, rejected up to 90% of plunger-and-barrel assemblies, because tolerances could not meet the fourth requirement.

How It Started

Of thirty-plus companies fighting for bid to supply the plunger-and-barrel assemblies to American truck diesels, only three ended up in the list of preferable suppliers. Others could not meet three "simple" requirements. All three winners (we call them A Corp., B Corp. and C Corp.; they enjoyed 55%, 30% and 15% of the market share, respectively), however, continued struggling with the notorious fourth requirement. With unbelievably high rejects, cost of production was so high that profit margin varied from $1 - 2\%$ to nonexistent…

Then, something strange happened. C Corp. quickly shifted from the third position in the market to the second. At first, A Corp. did not worry, but when C's market share grew to 40% and A's market share started declining to 50%, A's executive ranks were seized with panic. Competitive Intelligence discovered two totally contradictory facts: C Corp. sells its plunger-and-barrel assemblies 5% below the "established" cost, while its profits grow as if it enjoys 50% margin. A's executives decided that C's management went crazy selling the assemblies below cost, but somehow they managed to find a crazy investor who supports this squandering. News that C has bought all scrap (actually, rejected assemblies) from B Corp. and paid generously, confirmed this opinion. A's executives relaxed, because this craziness could not last long. However, strange things continued. One morning, C Corp. asked A Corp. to sell their rejects, and after some negotiations agreed to pay even better than to B Corp. A's CEO could not believe his eyes when he signed the agreement: it said that C Corp. also commits itself to buying the "fresh rejects" during the next five years. Suggested price covered cost of metal and machining of individual parts, with 3% margin. Are they lunatics? Or what?

Background

Now, we are going to look at the other side of the curtain, where the Competitive Intelligence could not penetrate.

While both A Corp. and B Corp. struggled, with little success, to improve their manufacturing discipline and accuracy, C Corp. started looking for a smart solution. They understood that their corporate culture is too low to compete with A and B. They had to acknowledge the aggravated dilemma: either they find how to become competitive without cultural changes, or they are out of business very soon. This message was immediately conveyed throughout the ranks. The company started the brainstorming journey.

First result of this journey was an understanding of the root cause of their problem: it is difficult to match two components, thus the assembly gets rejected, and cost skyrockets. As a matter of fact, actual cost of "good" assembly was 20 times more than it could be if all plungers matched the barrels.

This understanding resulted in the crazy suggestion: instead of trying to match arbitrarily selected components, find the "perfect match" among available components.

At first, this idea was ridiculed, because such process dramatically increased the labor involved. Then, some people wondered, how big this increase would be. A couple tests showed that labor cost of assembly might increase by a factor of five, while rejects drop from 95% to unbelievable 10%. This "balance" resulted in two to three time lower cost of "good" assembly. Even more effect could be achieved if previously rejected assemblies could be "revitalized."

Immediately, the draconian security and counter-intelligence were introduced throughout the entire company. This is why A's Competitive Intelligence could not find out what happened. Contradictory misinformation only added to their confusion.

C Corp. steadily shifted its labor forces toward the assembly; 90% of previous reject was reused and successfully transformed into the "good" products. Smart price reduction offerings to the fuel pump manufacturers steadily forced competitors out. Company profits began skyrocketing.

C Corp. people, however, did not rest on their laurels. Once accepting the taste of successful innovation, they continued their innovative journey. They found out, for example, that the variation of gaps between arbitrarily selected plungers and barrels is only 4 times larger than the appropriate tolerances. Engineers got a new challenge: find an efficient means to automatically "assign" plungers and barrels into four "matching" categories. As a result, labor consumption reduced and quality improved even more. Another consequence of this innovation was in understanding of reasons for 10% reject. Fifth and sixth "matching categories" reduced reject firstly to 5%, and then to mere 1%; previous reject was again "revitalized."

Then, innovators suggested buying competitors' rejects; it seemed less expensive than growing C's own machining facilities. Step-by-step, C Corp. shifted from machining-and-assembly toward "assembly only." As long as competitors were "kept alive," the prices of plunger-and-barrel assemblies were high enough for C Corp. to enjoy 40-50% margin.

Then, the inevitable happened. Both competitors understood that they can do better if they would machine plungers and barrels and sell them as "scrap." At the same time, C Corp. R&D discovered ways to increase accuracy of machining and licensed them to A Corp. and B Corp. As a result, the assembly process became simple and inexpensive, and new competitors immediately rushed in; prices for plunger-and-barrel assemblies began collapsing. New business innovation was needed.

Next Innovation: Shift toward the Fuel Pumps
Fortunately for C Corp., times of price collapse coincided with the rise of a new challenge in the diesel industry. Diesel motors needed, for better efficiency, more uniform fuel quantities delivered to different cylinders. Since delivery quantity is determined by turn of plungers, the matching between helixes on barrels became critical.

Fuel pump manufacturers introduced several "adjustments" that made fuel delivery more uniform, but significantly increased complexity and cost of fuel pumps.

When C's innovators became aware of this challenge, they immediately turned to their "hidden" core competency, i.e. matching approach. Secretly conducted research showed that 95% of plunger-and-barrel assemblies fall into a dozen "matching" categories providing highest quality uniformity without any adjustments. First idea was to supply "matched sets" to the fuel pump manufacturers; then, even better business idea was found.

C Corp. approached the leading manufacturer of fuel pumps, W Corp., with the following offer, "Since adjustment of plungers is not your core competency, let us assemble and adjust the plunger-and-barrels unit with the control rack. We can do it for you for a price 5% below your current cost of this operation. Deal?" Can anybody blame W's executives for accepting the offer they could not resist? Definitely, they didn't know – and didn't care – that C's margin from this "bargain" was more than 30%.

Innovative automation of new "matching" improved C's margin even more.

Later, C Corp. approached the leading manufacturer of fuel-injection nozzles and suggested, "As nozzle adjustment is not your core competency, let us do this for you – for a price below your cost." As one can guess, another "matching" was employed, with significant margin.

Accompanying R&D and IP Strategy

The fact that C Corp. managed to "circumvent" the challenges the industry faced does not mean that these challenges should not be addressed. C Corp. for a long time enjoyed an "unfair premium margin" for its products. They reinvested a significant portion of profits into the R&D efforts aimed at better accuracy of plungers and barrels, then in more and more accurate manufacturing of helixes, and so on.

The innovative R&D results were smartly protected by a system of patents, and then licensed to various domestic and international companies, both inside and outside the industry – including, of course, the competitors. At some period of time, C Corp. gained 45% of revenue from licensing.

On the other hand, significant R&D efforts were targeted at further development of company's core competency, matching and categorization. These efforts were protected by strict security "from the very bottom to the very top." Some patents and articles were publicized with the sole purpose of sending the contradictory, confusing messages to the competition.

Strengthening the Position in the Value Chain

Initial position of C Corp. in the value chain was very unstable and weak. This weakness was pre-determined by traditional relationships:

1. Strict requirements to the plunger-and-barrel assemblies limits the choice of supplies and suppliers.

2. Fuel pump manufacturers consider plunger-and-barrel assemblies as "expensive commodity," and thus can easily substitute one supplier for another.

3. Diesel engine manufacturers, as well as truck OEMs don't care which supplier produced plunger-and-barrel assemblies; they only care if fuel pump meets the specs.

4. Consumers more often than not don't even know that a part such as plunger-and-barrel assembly exists in their truck.

As a result, C Corp. has "lower hand" in negotiations with suppliers and fuel pump manufacturers, no voice in front of diesel engine manufacturers and truck OEMs, and no exposure to the consumers.

Clever exploitation of approach implemented by C Corp. produced new strategy that allowed strengthening the position in the value chain, transforming it into the leverage position. This strategy comprised the following changes skillfully conducted by C's executives and managers:

1. Reduced requirements imposed on plunger and barrel tolerances expanded the choice of both supplies and suppliers; more manufacturers could meet these requirements. As a result, C Corp. gained an upper hand in negotiations.

2. Since C Corp. became the lowest price / highest quality supplier of plunger-and-barrel assemblies, fuel pump manufacturers started seeking C Corp. executives' attention. When C Corp. suggested producing the plunger-and-barrel unit with control rack, they inevitably became the "supplier of choice."

3. Combining the plunger-and-barrel assemblies with fuel injection nozzles made C Corp. an equal partner in negotiations with diesel engine manufacturers.

4. Development of easy-to-replace plunger-and-barrel unit with control rack allowed retrofitting the engines, both being installed in the new vehicles and refurbished. Now, OEMs were interested in negotiating with C Corp.

5. Easy-to-replace plunger-and-barrel unit with control rack, with matching set of fuel injection nozzles, became a hot item in the after-market. Its cost and installation were compensated for by 5% reduction of fuel consumption. Now, consumers knew about C Corp. and its innovative products.

This strategy was not easy to implement; it took 5 years of well-orchestrated work. Now, it pays back by recognition, relationships, profitability and sustainable growth of stock price.

Appendix 12. "Evangelism Marketing" Strategy

Business Dilemma

Sales force is one of the most important assets of company making money. Sales force is the company's frontline troops. They are fighting for customers' money. Company can have the perfect product, the great marketing message, the highest-quality cost-superefficient manufacturing, but if its sales force is weak, the company's business is dead meat. But when the company is small, it faces the following dilemma:

> A small company should have large sales force in order to address multiple markets and market niches with multiple products…

> …but a small company shouldn't have large sales force, because large sales force is unaffordable for small company.

Small sales unit representing the small business cannot win against huge sales army from large competitor's company. What to do?

Revealing and Inverting the Assumptions

The assumption that creates this dilemma is, "sales force consists <u>only</u> of professional salesmen." The keyword here is, "only." Inversion of this word suggests the idea of non-professional salespeople for your product.

Another assumption is, "salespeople <u>always</u> sell the products for money." Inversion of keyword "always" suggests that there might be the different reason for salespeople to sell your product.

Combination of these two ideas suggests the "sales force consisting of non-professionals selling your product for free, voluntarily." Hmm, it would be nice to have such sales force, wouldn't it?

Sketch of Strategy

Evangelism is selling a dream.

- Guy Kawasaki

Who can be the enthusiastic non-professional salesperson so interested in the product that he's selling it for free? Guy Kawasaki, the former chief evangelist of Apple, got the idea that customers can become the most enthusiastic sales force if they are so happy with your product that they try to make others happy, too. With this idea, he invented the Evangelism Marketing.

Wikipedia describes Evangelism Marketing in the following way[17]:

> "Evangelism marketing is an advanced form of word of mouth marketing (WOMM) in which companies develop customers who believe so strongly in a particular product or service that they freely try to convince others to buy and use it. The customers become voluntary advocates, actively spreading the word on behalf of the company.

> "Evangelism marketing is sometimes confused with affiliate marketing. However, while affiliate programs provide incentives in the form of money or products, evangelist

customers spread their recommendations and recruit new customers out of pure belief, not for the receipt of goods or money. Rather, the goal of the customer evangelist is simply to provide benefit to other individuals.

"As they act independently, evangelist customers often become key influencers. The fact that evangelists are not paid or associated with any company makes their beliefs perceived by others as credible and trustworthy.

"Evangelism literally comes from the three words of 'bringing good news' and the marketing term justly draws from the religious sense, as consumers are literally driven by their beliefs in a product or service, which they preach in an attempt to convert others."

Hence, if you manage to bring to the market the product that makes your customers really happy, and can indirectly organize their "grassroots" movement of suggesting this product to their relatives, friends, neighbors or even strangers, then your company can operate an army of enthusiastic salespeople – practically for free.

According to Ben McConnell and Jackie Huba, implementation of this strategy consists of six steps[18]:

(1) Customer plus-delta (Continuously gather customer feedback)

(2) Napsterize knowledge (Freely share your knowledge)

(3) Build the buzz (Create intelligent word-of-mouth networks)

(4) Create community (Encourage communities of customers to meet and share)

(5) Make bite-size chunks (Devise specialized, smaller offerings to get customers to bite)

(6) Create a cause (Focus on making the world, or your industry, better)

As one can see, these steps are the perfect match to the innovative strategies described in this book: for instance, "size chunks" are the same as step-by-step implemented product generations that steadily improve customers' experiences.

As a friend of mine, evangelist in Ron Paul's campaign Mark Frazier stated, the key approach that enables the Evangelism Marketing is telling the truth and delivering to the customers the product that REALLY solves their REAL problem. Any untrue statement, any unneeded product or feature – and there is no "word of mouth." People need to really love your product, really enjoy its use – then, and only then, they tell everybody else that this product is worth buying.

Innovative Tools to Support This Strategy

"Evangelism Marketing" strategy looks rather like an uncontrollable process: one cannot give orders to and control actions of members of the "grassroots movement." However, it is a dilettante's point of view. The strategically-minded entrepreneur is controlling this process through delivery of proper, long-awaited innovations and by accompanying the innovative products with proper, honest messages.

Systematic development of this strategy can be supported by the following innovative tools:

- Outcome analysis
- Analysis of Contradictions

- FutureMapping

Outcome analysis reveals the unsatisfied need or underserved outcome. Analysis of Contradictions discovers the wrong assumptions that prevent entrepreneurs from satisfying the need or outcome, and suggests the proper solutions long-expected by customers. FutureMapping suggests the sequence of solutions and overtly defines messages to the customers: what will be delivered and how it improves the customers' experience.

Appendix 13. "Avoid Hard Blows" Strategy

Business Dilemma

Our lives are full of dangers; some of them realize, some remain "potential" forever. In business life, the situation is the same; life of small business is full of dangers. The most "unexpected" dangers happen exactly when all the troubles of launching the business are left behind, when the company feels the first taste of big success. Exactly at this moment, the following dilemma hits the company:

> A small company should be hit hard by large competitor, because the competitive acts are swift and hostile…

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

Relaxation accompanying the first success and unexpectedness of this dilemma make the situation really life-threatening. How to survive and stay in business?

Revealing and Inverting the Assumptions

While explanation, "company needs to react to the competitive act when it happens," is reasonable, the generalization "only" produces the assumption that renders the dilemma shown above "unsolvable." This assumption is, "company needs to react to the competitive act <u>only</u> when it happens." If so, the company is totally unprepared to the hostility of competitive blow and doesn't have extra resources to fight.

Inverting the keyword "only," one can get much better idea: "company needs to prepare to the competitive act long before it happens." This is exactly what other innovative strategies suggest.

Sketch of Strategy

> True spirit of Judo is nothing but the gentle and diligent free spirit. Judo rests on flexible action of mind and body. The word flexible however never means weakness but something more like adaptability and open-mindedness. Gentleness always overcomes strength.
>
> -   *Kyuzo Mifune*

Briefly, the company's risk mitigation process consists of the following approaches:

1. Acknowledge the inevitable risks ahead of time, rather than avoid mentioning it in futile hope that "it won't happen to us";

2. Consider the ways to mitigate this risk and take precautionary steps ahead of time, so that all necessary resources are already in place when the risk materializes; and

3. Watch for early signs of danger, and timely employ the contingency plan.

Let's consider the realization of this process in three typical situations.

Competitors copycat company product and market it at lower Price.

Probability of occurrence: This risk has high probability of realization, because large corporations have to copycat successful competing products and sell them at lower prices to avoid erosion of their customer base.

Company response: Company designs into the **first** version of its product the potential capabilities for multiple future generations. These capabilities will be designed in the way that they (a) aren't overt to the people unfamiliar with company's vision of future generations of product, and thus cannot be reverse engineered; (b) cannot be enabled without some critical components or connections, thus cannot be revealed by competition ahead of time; (c) include some components in both product and tooling that are not used by "current" generation of product, thus conveying to the competition the image of "unnecessary excess"; (d) are tested, proven and debugged before the launch of the first product, thus not needing any additional testing and redesigning; and (e) can be enabled fast, without any significant changes to the manufacturing process, thus dramatically reducing time-to-market and cost-and-effort of launch. As a result, the company, as soon as competition starts marketing the copycats, delivers to the market new product and starts marketing its already established products to new markets / market niches.

Reasons for such response:

- Company cannot afford the pricing war due to limited cost-reduction resources available to startup;

- Company cannot afford the patent infringement litigation due to limited financial resources available;

- Company cannot afford repeated launches of new products due to their enormous cost.

Disadvantages of response and ways to deal with them: Company's approach increases cost of product relative to the "lean functional" design. However, this extra cost is compensated for by not experiencing losses from price reductions, repeated launches and litigations, as well as by gaining the competitive edge via "unbelievably" short time-to-market.

Competitors or patent trolls file a patent infringement lawsuit.

Probability of occurrence: This risk has high probability of realization, because (a) large corporations use such tactics to protect their customer base from erosion caused by a successful, but small company; and (b) the patent trolls' activity is exponentially growing nowadays.

Company response: Company plans to file the "patent fences" around all generations of its products. These patent fences include detailed claiming of all feasible implementations of each "functional" component of invention. Such patent fences comprise multiple patents, with hundreds and even thousands of claims. As a result of filing these patent fences, Company expects to scare off any attempt to attack these patents in the court.

Reasons for such response:

- Company cannot afford the patent infringement litigation due to limited financial resources available;

- Company cannot afford any settlement due to limited financial resources available.

Disadvantages of response and ways to deal with them: Company's approach significantly increases cost of filing patents, from thousands of dollars for filing the "conventional patent" to hundreds of thousands for filing the "patent fence". However, this extra cost is compensated for by avoiding the way too expensive litigations.

Competitors don't allow the Company to use their proprietary products / processes / materials.

Probability of occurrence: This risk has high probability of realization.

Company response: Company plans to use "non-traditional" components, processes and materials provided by potential strategic partners.

Reasons for such response:

- Company cannot afford non-licensed use of components, processes or materials;

- Company cannot afford in-house development of these components, processes or materials.

Disadvantages of response and ways to deal with them: If company cannot use "conventional" components, processes or materials, it experiences difficulties with implementing the product or some its features. Use of non-traditional components, processes and materials require thorough testing and "debugging." On the other hand, company's approach, in conjunction with synergistic cooperation with startups providing the unconventional components, processes and materials, develops really strong competitive edge.

Innovative Tools to Support This Strategy

Systematic development of this strategy includes discovering the inevitable risks ahead of time, revealing their real root causes, and finding the ways to timely detect, mitigate or prevent these risks. The following innovative tools are helpful here:

1. Failure prediction
2. Failure analysis
3. Analysis of Contradictions

The fundamentals of TRIZ-based Failure prediction and Failure analysis had been developed by Boris Zlotin and Alla Zusman.[19] Later, Ideation International Inc. developed the Anticipatory Failure Determination approach.

TRIZ-based Failure prediction starts with inversion of problem statement. Instead of asking, "What troubles could happen?" this approach suggests asking, "How to make harm to this system or with this system?" Then, conventional TRIZ forecasting and problem solving can be used.

Similarly, the TRIZ-based Failure analysis starts with inversion of problem statement: instead of "Why it happened?" it suggests asking, "How to make it happen?"

As one can see, these two approaches provide for systematic ahead-of-time discovering of potential business and technological risks, reveal and eliminate the real root causes of these risks. Sometimes, elimination of root causes involves the contradictions that need to be revealed, analyzed and removed. Suggested in this thesis Analysis of Contradictions is very helpful for this purpose.

Appendix 14. "Strategize Your IP" Strategy

Business Dilemma

Nobody (yet) files the patent infringement litigation against the unsuccessful companies; however, if company's product shows the commercial success, then…

> A 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.

This dilemma is the other side of the coin of "copycatting"; usually, copycatting and patent litigation go hand-in-hand. If company doesn't foresee and address this issue, all its money can be lost in this fight.

Revealing and Inverting the Assumptions

The assumption that creates foundation to this dilemma is, "company fights patent litigation <u>only</u> when it happens." This assumption is wrong, because the odds to win this litigation are fifty-fifty, while money involved is practically equal to everything the company has…

Inverting the generalization "only," one gets an idea of preparing ahead of time. However, if any other litigation is based on violation of law, and thus can be (hopefully!) avoided by obeying all laws[20] (which is difficult, too!), the patent infringement litigation is a different creature. It is not about the "law," but rather about whether or not some smart attorney can prove that the wording in text document (patent) can be taken as an exact description of company product or its component or process that company uses. Since there is no exact match between words and real-world objects and actions, such semantic debates might be pretty lengthy (and there is no better materialization of proverb "time is money" than attorney's services!) and never are "absolutely" conclusive. In most cases, it is "opinion against opinion."

Hence, the strategy of avoiding the patent litigation faces another contradiction:

> Product or process should be exactly described by patent, so that it would be evident that company operates in boundaries of its claims…

> …but product or process cannot be exactly described by patent, because words never exactly describe real objects and action.

This dilemma is based on the assumption that "the company product or process can be sufficiently described with <u>minimum</u> words." The fact that patent infringement litigations are continuously growing "business" proves this assumption wrong.

If one inverts the keyword "minimum," the following idea could appear: describe the product or process with all somehow related words. Or, more correctly, describe all "semantic components" of innovation with all possible words.

Sketch of Strategy

This idea suggests the following process of designing the patent fence around the company's innovation:

1. Split the description of company's innovation into "semantic elements";

2. Describe all alternative realizations of each semantic element; and

3. Describe every alternative with all applicable synonyms.

This description is lengthy, creates hundreds and even thousands of claims, but it "protects" the innovation as comprehensively as possible.

Since developing and filing the "patent fences" is time-consuming and expensive (just USPTO filing fee for one "patent fence" may range from $20K to $60K, depending on level of protection), the company should strategize its IP protection as follows:

(1) Develop all patent applications ahead of time, while developing the multi-generation product;

(2) File only patent applications disclosing the features of first product;

(3) File appropriate provisional patent application a week before "launching" a new feature;

(4) Ten months later, analyze the market feedback on this feature; and

(5) If feedback is positive, file the non-provisional "patent fence" protecting this feature.

The widely-accepted idea of IP protection is filing the provisional patent applications as early as possible. The earliest priority date, however, comes at severe cost:

- Wasting money by patenting the concepts and features that later prove unprofitable

- Patenting separately all inevitable corrections made during implementation

- Losing IP if funds come too late to pay filing fees for non-provisional patent application

Company's IP protection strategy is designed in attempt to avoid these dangers. This strategy is an exact realization of "Fat Product – Lean Process" strategy: start the IP protection process from the "many-generation-ahead" patent fence. Since the company incorporates these capabilities, in latent form, in the first-generation product, launching the subsequent next-generations will be easy. The company can launch these new features when it decides to, rather than start developing them under competitive pressure. Accordingly, filing the provisional patent fence that protects the new features is a deliberate act of the company, rather than haphazard activity. In a few months, success or failure of new features' commercialization is evident, and then the decision on filing the non-provisional patent fence is made easier.

On the other hand, the company should avoid patent infringement litigation. In some industries, large companies sue any "newly successful" startup, regardless to whether infringement is real or not, just to drain the potential competitor of money. Patent trolls are another danger; they run the "legal intellectual racket." In any case, a small company doesn't have enough money to survive the attorneys' fees. The small company, however, can avoid patent infringement litigation via filing the "patent fence"-type patent applications claiming all foreseeable alternative realizations of company's ideas. Such comprehensive claiming is

more expensive in filing, but it scares off any competitor or patent troll from accusing the company of infringement of their patents.

Innovative Tools to Support This Strategy

Strategizing the Intellectual Property assumes, first, its expansion from one innovative idea to the comprehensive set of ideas. Hence, the following tools could help the innovative entrepreneur here:

1. Functional / Flowchart analysis
2. Idea Multiplication
3. Search for alternatives

Since all these tools have already been described in detail, anybody entrepreneur "skilled in the art" can apply these tools to the particular purposes of IP expansion.

Appendix 15. "The Bear Hug" Strategy

Business Dilemma

> Don't ever wage two-front war. It is suicidal.
>
> - *Bismarck*

Every business faces this dilemma on the daily basis, especially the small ones:

> 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.

Competition with large companies is deadly to small businesses, so this competition is the number one priority. However, there are also "equal" competitors who attack the small business every day and take away the customers. There are way too many such "equals," and a company cannot allow them to "steal" even one customer each.

But competition at multiple fronts is suicidal to the small company with limited resources. Then, what to do? Rephrasing Hamlet, "To compete or not to compete?"

Revealing and Inverting the Assumptions

This dilemma is based on assumption, "<u>Every</u> company targeting <u>the same </u>customer base with means for satisfaction of <u>the same</u> need is a competitor." This assumption sounds very reasonable, and suggests fighting every company in the same market segment, i.e. stretching scarce company's intellectual resources, both in marketing, sales and engineering, to respond immediately to every real or imagined competitive threat. The fact that such stretching is suicidal is always parried with, "Letting that competitor overcome you is really suicidal. Go and fight it!"

If one inverts the keyword in this assumption, "every," he immediately gets an idea that not every company is a competitor. Some of them might be used as resources, at least temporarily.

On the other hand, inversion of generalization "the same" suggests that a business strategist should not limit her or his list of competitors by ones who are "doing the same" and "selling the same category of products." Rather, this strategist should take as a competitor anybody who aims for the same dollar in customer's wallet. By the way, these competitors can be used as resources to smart business, too.

Sketch of Strategy

> Those who are skilled in combat do not become angered, those who are skilled at winning do not become afraid. Thus the wise win before they fight, while the ignorant fight to win.
>
> - *Zhuge Liang*

The "Bear Hug" strategy suggests temporary partnering with companies that possess the core competence necessary for further advance of the company's business. This approach is more efficient than competing while trying to develop needed core competence in-house.

This strategy is not "pacifistic" at all. It rather recommends the following:

1. Reveal what expertise is needed for company's business success, but is not yet available in-house;

2. Find out which of potential competitors already possess this expertise and have already developed it to the level sufficient for company's needs;

3. Decide which portion of company's unique expertise might be useful to this competitor, and offer it in exchange;

4. Temporarily partner with these potential competitors to acquire needed expertise and incorporate it in company's product or process;

5. When competitor's expertise is properly acquired, and partnership is not beneficial to the company anymore, break the relationship and beat the competitor to dust using "insider" knowledge about their business.

Remember, that in the competitive war you should be permanently loyal only to your own business, not to any "partner." On the other hand, don't expect any "partner" being loyal to your business. A partner today is always a competitor tomorrow.

There are many other reasons for such temporary partnership. Small company can, for instance, pretend to have access to a large customer base of its "partners"; prevent the "partner" from successful competition in specific market niche; manipulate the "partner's" activities; use "partner's" resources for free or for nominal cost. The key point here is, "use, abuse, discard," i.e. never be too loyal to anybody's business, especially at the expense of your own business.

Innovative Tools to Support This Strategy

To properly develop and implement the "Bear Hug" strategy, the innovative entrepreneur should solve the following problems:

1. Reveal all alternative realizations and future generations of innovative products, and select "the best" alternatives for implementation
2. Discover what resources the business will need to implement several generations of innovative products
3. Find out what resources the business lacks
4. Find these resources in rivals' businesses
5. Decide what resources could be easily sacrificed to get needed resources from rivals

Accordingly, the following innovative tools could support these mental activities:

1. FutureMapping
2. Idea Multiplication
3. Search for alternatives
4. Functional / Flowchart analysis
5. Analysis of resources

FutureMapping reveals future generations; Idea Multiplication and Search for alternatives discover the alternative realizations of product. Functional / Flowchart analysis is of paramount importance in checking what the business should do to produce the innovative products. Analysis of resources… well, the name speaks for itself.

Appendix 16. Innovative Strategies for Competing with Equal Rivals

Unusually fierce competitive combat that inevitably starts after the first commercial success of company is not the only headache of company leadership. This combat proceeds on the background of continuous competition with equal rivals; this competition never stops.

"Equal competitors" to the company, or its "equal rivals," play the same role as this company in the Value Chain. The company's goal in competition with its "equal rivals" is to improve its position at the expense of theirs. In this competition, the company can do only five things:

1. Increase your profitability;

2. Increase your market share;

3. Conquer another niche;

4. Increase size of the market; and

5. Conquer a new market.
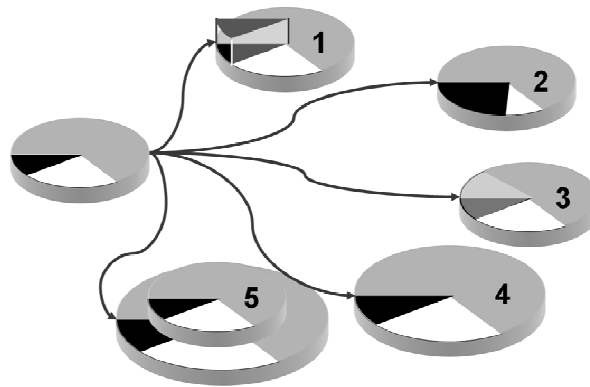
Fig. 5. Five ways to improve company position in the market

Increase Profitability

Company can increase profitability above the "market average" in the following ways:

1. Reduce cost of ownership to gain more premium:

   - Distribute one function among two or more components
   - Integrate similar functions in one component
   - Integrate the process into inseparable "one-shot"

2. Get rid of excessive components and operations:

   - Corrective
   - Auxiliary
   - Duplicating

3. Use solution from another industry

Increase Market Share

Market share inside the company's market niche could be improved in the following ways:

1. Develop the "Product Family":

   - Same functioning
   - Combinations of alternatives
   - Wide range of cost of ownership & performance

2. Dramatically improve on critical issue

- Address the most critical issue rather than cure the symptoms
- Resolve the dilemma rather than "optimize"
- Eliminate the issue completely with minimum changes

Conquer Another Niche

Company can move to the adjacent market niche in the same market. For this purpose, company should generalize the purpose of its product, and thus find the ways to apply it to different market niches:

- Same product, different applications of similar nature
- "Plug-and-play" to existing systems
- "Invent" the need for improvement provided by your product
- Usual focus on niches where new approach resolves the key dilemma

Increase Size of the Market

The size of market is determined by the number of customers of the same category who can buy the product right now. Usually, this number depends on two parameters: total number of customers of the same category, and duration of their "itching period," i.e. the period between two sequential purchases. Since a company cannot influence the total number of customers in the category, it can only increase the market through drastic reduction of "itching period":

1. Aftermarket

- Former customers are the prospects again
- Offering upgrade that improves way of using the "old product" brings repetitive customers easier than offering the completely new product.

2. Competitive "plug-and-play" upgrade

- More often than not, competitive products differ only slightly.
- Practically any "upgrade" could be intentionally designed to be compatible with competitive products.

Conquer a New Market

Company's product can be used in different market, i.e. customers can use its product to satisfy a different need than the initial one. The following approaches could be used to identify these new markets:

1. Generalization of purpose: new product for new needs

- Distinct need, similar functioning

2. Integration: new product involved in several needs

- Product participates in satisfaction of various needs
- Special attention paid to the periods when "traditional" product is usually idle, out of use
- What else the product could've done at the same time while performing its main purpose

3. Specialization: known product modified for very specific application

- Specific need or industry that can be benefited by slightly modified product's functioning

Appendix 17. Tactics, Approaches and Techniques

More "bad news" for an innovative strategist is that a strategy itself is not enough for proper implementation. Innovative strategies cannot be properly implemented with tactics, risk mitigation approaches and mindset-development techniques designed for "conventional" strategies. Different tactics, contingency approaches and mind-setting techniques that are not taught in MBA programs are needed.

Here is the brief description of innovative tactics, approaches and techniques.

21 Tactics for Entrepreneurial Strategist

The start-up strategist needs to use multiple tactics to implement the innovative strategies. He should make them the guidelines in decision-making throughout the entire company.

Expand Your Opportunity

Every innovation has a purpose and principle of operation. Usually, the innovator has one purpose in mind, and selects the most appropriate principle of operation out of the few known to him.

This tactics suggests intensive use of Idea Multiplication approach: listing and combining all alternative purposes with all alternative principles of operation. As a result, the opportunity for innovation expands enormously.

Protect Your Idea with Patent Fence

Any patent has two "lives": one during the US PTO processing, and another after the patent is granted. These two "lives" impose absolutely different requirements on the patent application, especially on patent claims. Usually, patent attorneys focus on the first "life," and ignore the patent's capability to protect the invention.

This tactics suggests the ways to develop patentable and highly protectable patent fence around the company's innovation. The approach is based on claiming all the alternatives to all "semantic elements" that describe the innovation.

Scare Competition off Your IP

A lot of competitors, especially the large corporations and patent trolls, are eager to file the patent infringement litigation against the successful small business.

This tactics is based on Patent Fence tactics, as well as on experience of successful patent trolls. It suggests scaring the competition off by filing patent applications with hundreds or even thousands of claims.

Timely Patenting

The "conventional" sentiment is, the earlier you file the patent, the more chances that you are the first to claim the idea.

Filing the Patent Fences should not be a one-shot activity. File the provisional patent application on the next-generation product a week or two prior to starting the commercialization of this product. Then, if the first 8-10 months of commercialization are

successful, file the non-provisional patent application. Otherwise, "drop the unsuccessful innovation."

Design Latent Features

Usually, new features are designed into the existing product when the company needs to shift to the next-generation product. This process causes costly launches.

This tactics suggests designing multiple generations ahead of time, then disabling the extra features to the "bare initial product." Several key elements should be taken away so that the next-generations features are disabled and cannot be reverse-engineered by competitors.

Exploit MLM for Market Penetration

Another solution to the dilemma, "We need a big army of salespeople, but cannot afford it," is as follows: find the incentives for MLM to distribute and sell your product. This tactic is especially useful if the product is very simple and needs to penetrate the market fast before competition copycats it. MLM is an already well-organized, large army of non-professional salespeople who willingly sell various products for financial and other incentives.

Organize the Proactive Networking to Connect Needs with Solutions

Typically, networking events help people and businesses finding each other due to the "large numbers game." If you need to organize networking, develop it in the "proactive" way, with screening the needs and offerings and connecting them prior to the actual networking meetings. In this way, the efficiency of networking grows exponentially.

Keep Below the Competitive Radar

The conventional wisdom says, if your business is successful with this category of customers, exploit this success to the very end. However, after some level of success, the newcomer becomes visible on "competitors radar screen," i.e. becomes recognized as a threat. The "punishment," i.e. hostile competitive blow, follows inevitably, and can even kill the company.

This tactics suggests monitoring your own business success, and prepare for fast movements as soon as your market share becomes "visible." The best moves are upgrading to the next-generation product and tapping new market segment.

Search for Competitors' Blind Spots and Exploit Them

All companies, even the large ones, have blind spots, the issues they don't or can't pay attention to. While it is dangerous to offend the competitor in the area of his focused attention, it is much safer to attack the competitor's blind spot.

This tactics utilizes the list of typical blind spots, and suggests the efficient ways to take advantage of them.

Competitive Judo: Help Competitor Hit Hard, but Don't Put Your Face There

This tactics is based on continuous, thorough monitoring of competitors' preparation to attack the company's business, and company's preparedness to the typical attacks, such as price war, patent litigation, etc.

As soon as a competitor begins the attack, the innovative company can even "amplify" its strength, but redirect it away from company's business.

Double Negation: Hit the Target, But From the Opposite Side

Use "non-conventional" actions to achieve company's goals. Company's actions should be opposite to what competitors usually do, but should aim at the same target.

Example: Casio began price drop on their 2-mm calculator weeks after introducing it to the market. Competition was confused, and didn't even begin copycatting. As a result, Casio hit the target: captured the market segment unopposed.

Aim Beyond the Target

"Most full-contact martial artists, including boxers, karate and others, know that when they strike a target, they do not aim at the surface of the target, but, rather, several inches behind the target. The boxer does not aim for the chin, but goes for the back of the opponent's head and (incidentally) smacks the jaw on the way through. When breaking those big slabs of concrete, the martial artist does not hit the surface of the concrete, but aims for the floor or air behind it. The follow-through ensures that the target is hit, and hit effectively, because when you aim beyond the target, the target itself is hit as a matter of course."[21]

The same is true in business: every time the innovative company is going to achieve something, it should aim beyond the target. Then, the achievement comes easier and more naturally.

Know the Best, Implement Step-by-Step

In implementing any innovation, there is a temptation to immediately bring it to the market at the maximum extent. This temptation, however, is wrong both for company and customers. Company invests enormous money, resources and effort, and in the end has no space to move forward. Customers, on the other hand, prefer incremental improvements.

The proper tactic is to bring the innovation to the customers step-by-step, from "current product plus" to the maximum envisioned set of new capabilities. At every step, customers should have enough time to become accustomed to the new feature, feel satisfaction due to its availability, and then start expecting something better. At this moment, the company should come up with "one more feature."

Focus on Small Market Niche, Keeping in Mind Huge Customer Base

The marketing temptation is always to "grab" the largest market segment possible, and hope that "Chinese math"[22] will work for the company. It usually doesn't.

It's much more advisable testing each new market or market niche through relatively small customer base with well-defined need, and then expanding the offering to vaguer, broader category of customers.

Focus on One Outcome, Keeping in Mind Satisfaction of Entire Need (or Even Multiple Needs)

Another marketing temptation is to bring to market the complete solution, i.e. the Whole Product. Although the concept is valid, and customers prefer getting all the problems already

solved, it would be more advisable starting with one most important and under-served outcome[23], then expanding the offering to the Whole Product.

Focus on Overlaps of Needs: the Customers with Such Overlaps Have an Unsolvable Dilemma

It seems natural to address the single need of target customers. The market research is easy, and customer base seems to be huge. However, it comes out that it is difficult to find really a "burning" need. It is much easier to find the unsolved dilemma between two needs. If two customer's needs cannot "share" the same resource, such as time, the customer feels permanent dissatisfaction. If this dissatisfaction is addressed so that both needs could be satisfied without an "internal fight" for this resource, the customer becomes so happy that he can even begin evangelizing the company's product.

Such "overlap" market segment is much smaller than one presented by one need, but addressing this market segment is really easy.

Tell the Truth: Competitors Don't Believe It, but Customers Do

Every company has secrets from customers, either about their product, or their process, or their marketing message. The companies keep these secrets "tight to the chest" so that competition couldn't leverage them.

The entrepreneur-strategist's most important secrets are his strategies. However, these strategies are so counterintuitive inside the industry that no competitor could believe this is true. On the other hand, these strategies being customer-oriented make a lot of sense to the customers. So, telling the customers the truth could hardly do any harm to the company, while dramatically improving its image. Even overt acknowledgment of product's deficiencies could be used for good PR – like Microsoft's joke, "We don't have bugs, we call them 'features.'"

Terrorize the Competition: Publicize Their Weaknesses and Your Solutions

Terrorizing is an important tactics of guerrilla war. The company competitors should be terrorized as much as possible, especially if company – while telling the truth to its customers about its strategies – discloses the industry weaknesses and company's approaches as a solution to these Achilles' heels. Taking the industry laundry to the light when company has the solution is the fact-based self-advertisement. Make it public before the competition could drown the innovative company with negative PR.

Avoid Litigations and Competitive Confrontations

Any litigation is prohibitively expensive in many aspects to the small business. It is not only the lawyers' fee. It's also loss of focus of scarce human resources of company. It's also loss of customers who don't believe the company is going to stay in business for long. Litigation should be avoided at any cost. No "draconian" policies are too strong in litigation avoidance.

Avoiding the competitive confrontation is a reasonable way to use the scarce company's resources. Any time the competitive confrontation begins unfolding, either flee the battle, or partner the counterpart.

Exploit the Infrastructure Available to Your Customers

Customers don't want to have a headache that is stronger with innovative product than without it. They would simply reject the innovative offering. It's company's job to make use of its new product as natural to the customers as possible. The more the company exploits the infrastructure available to its customers, the better.

Intelligence, Intelligence, and Again Intelligence

To successfully implement the innovative strategies, the company leaders need to know exactly the moment when the predetermined action should be taken. The innovative strategist needs to know as much as he can about competition, their plans and preparations. He should pay special attention to the competitive intelligence: it should be worth every penny the company pays for it.

Techniques for Risk Mitigation

> The judoist has no time to allow himself a margin for error, especially in a situation upon which his or another person's very life depends. The secret of judo is serenity of mind.
>
> - *Watanabe and Avakian*

The following techniques can be used to "forestall" risk mitigation:

1. Develop Responses to Inevitable Threats Ahead of Time
2. Expand Your Competition
3. Know and Watch Your Own Blind Spots

Here, they are briefly considered one-by-one.

Develop Responses to Inevitable Threats Ahead of Time

There are multiple inevitable threats to the company business. Most of them realize as soon as the company shows its first significant success, such as:

- Copycatting,
- IP infringement accusation,
- Pricing war.

To successfully avoid and respond to these threats, the innovative company should:

1. Ahead of time, discover and list all inevitable risks to its business, i.e. events that can throw the company out of business;
2. Develop the most efficient responses to each inevitable risk, taking into account company's limited resources and capabilities, as well as "no margin for error"; and
3. Continuously monitor the situation, and employ the responses at predetermined moments.

Expand Your Competition

Intuitively, any company tries to minimize its competition. It is true, to some extent. A company should minimize its ACTUAL competition at any moment of its business development. However, in ahead-of-time preparation of responses to the risks, the company leadership should expand its consideration of potential competition as much as possible. Company should consider all competitors that:

- Commercialize the same type of product

- Satisfy the same outcome

- Satisfy other outcomes of the same need

- Satisfy other needs of the same customer

- Aim for the same dollar in the customer's wallet

Eventually, each of these "atypical" competitors will hit the innovative company. The duty of strategic leadership is to prevent such competition being an "unexpected surprise."

Know and Watch Your Own Blind Spots

Every business, whether small or large, has its own blind spots. While leveraging the blind spots of competition, the company must continuously monitor its own blind spots so that competitors can't leverage them:

- Limited resources;

- Improper allocation of resources;

- Arrogance, unawareness;

- Low commitment to the business;

- Self-imposed rules, psychological inertia;

- Lack of knowledge;

- Lack of information; and

- Competition with company's own customers.

Company leadership should recognize ahead of time the actual areas of blind spots and potential risks of competitive attacks, and then develop defensive responses.

Prerequisites: Approaches to Develop Appropriate Mental Capabilities

The entrepreneurial strategist needs to develop the following intellectual capabilities for efficient implementation of innovative strategies:

1. Opportunity Foreseeing

2. Timely Problem-Solving

3. Efficient Market Monitoring:

    a. Watch for "Functional Bestsellers"

    b. Watch for Early Satisfiers of Under-Served Outcomes

    c. Watch for Disruptive Innovations

4. Functional Analysis and Opportunity Synthesis

5. Outcome-Oriented Approach

6. Lanchester's Strategies

7. Risk Analysis and Foreseeing

These mental capabilities, derived from structured innovation approaches and tested in multiple successful projects, become especially useful when employed in context of strong strategies and tactics.

Appendix 18. Brief Summary of Strategies

Table 10.   Winning Strategies for Innovative Startup

Strategy	Essence of Strategy
Catch Me If You Can	• Prepare the new grounds, e.g. next generation products, new markets, new differentiations, ahead of time; • Accumulate the big success from multiple successes small enough to avoid competitive attention; and • Under competitive attack, run to the new grounds, don't fight back.
Fat Product – Lean Process	• Develop the next generation products, new markets, new differentiations, etc., ahead of time; • Hide the future features from competition by removing some key elements that later can be easily added; and • Under competitive attack, run to the next-generation product, and don't get involved in the pricing war or other competitive battles.
Icebreaker	• Design the simple "upgrade" to the existing product; this "upgrade" turns the unsatisfactory existing product into the satisfactory one; • Design the "upgrade" so that it is "plug-and-play" compatible with products of the most popular brands; • Split the process of implementing the "upgrade" into two or more stages; • Implement the "first stage" that covertly prepares for flawless and quick implementation of the "upgrade"; • As soon as "first stage" implementation gains momentum, start implementing the "upgrade."
Emulation	• Reveal the competitor's strengths that cannot be reproduced by a small company; • Reveal the alternative ways to produce the same benefits; and • Under competitive attack, emulate the competitor's strengths and, at the same time, exploit the small company's unique strengths.
Think Big, Target Small	• Reveal the core principle of your innovation; • Find out what other target customers can benefit from this core principle, even if these categories are relatively small; and • Under competitive attack, move from one category to another, thus accumulating the significant customer base in multiple market segments.
Win the War, Not the Battle	• Focus in one small market segment; • Watch carefully when competitive products hit the market; and • 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.
Bowling Alley	• Develop multiple generations of product; • Reveal the logical sequence of conquering the market niches, so that current customers can serve as relevant reference to the new ones; and • 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.

Strategy	Essence of Strategy
Go Where the Puck Will Be	• Always "skate where the money will be": Find the not-yet-good-enough, but performance-defining components and operations in the value chain, integrate them into the company's business and leverage them. • "Eat your way up the value chain": As soon as commoditization of company's product begins, search for new area where the money will be; for this purpose, look upward the value chain. Approach your "customers" with the standard offering, "Let me do for you that and that; anyway, it is not your core competency." Although their acceptance is a win-win solution, you win much more. • Support this "skating" with efficient innovative efforts: Ahead of time, address the challenge, "How to achieve the desired outcome with available resources and circumstances?" Keep the "unfair, non-traditional" solution as proprietary and hidden from your competition as you can.
Evangelism Marketing	• Discover what your customers REALLY need, and develop the product that REALLY solves customers' problems; • Deliver this product to the customers; and • Organize the grassroots movement of customers who are "so happy they freely sell your product for you."
Avoid Hard Blows	• Always prepare ahead of time to the highly potential risk; • Thoroughly watch for early signs of danger; and • Under competitive attack, "slide away" from competitive blow.
Strategize Your IP	• File "patent fence"-type patent applications, describing all the possible and feasible alternatives to all components of your innovation; • File the patent applications timely, protecting only features that are commercially successful; and • Under competitive attack, "cover your anatomy" with this patent fence.
The Bear Hug	• Reveal what unavailable expertise is needed for success; • Find out the potential competitors that possess this expertise; • Share a portion of company's unique expertise; • Temporarily partner potential competitors to acquire needed expertise; and • When you feel the partnership isn't beneficial anymore, drop and kill the "partner."

Appendix 19. Questions and Answers

Author foresees multiple questions that haven't been answered in this thesis, but are important for proper understanding of strategies, approaches and tools. Author follows the principle of preliminary action exploited by vast majority of suggested strategies, and answers here some of the most expected questions:

1. *Are these strategies the only solutions to the given problem situation?*
   No; where there is one solution (e.g. suggested system of strategies), there are many.

2. *Do we need any tools different from well-known TRIZ tools to solve the business problems?*
   Yes, because:

   a. TRIZ tools are technology-oriented
   b. Solutions to business problems should be customer-oriented
   c. Technological problems are much easier than business problems

3. *Are suggested tools the only ones that could be used?*
   No; where there is one solution (e.g. suggested tools), there are many. The tools for business problem solving should be customer-oriented and to-the-point.

4. *Is the competitive attack so inevitable after an innovative company reaches the first substantial commercial success?*
   Yes, it is inevitable. Inevitability of this fierce competitive attack is just an opposite side of normal way to conduct business.

   Every company is in business of making money. The only source of company's own money is what its customers pay for company's products and services. Any other money is just temporary borrowed, company doesn't own that money. Hence, to every company, whether small or large, preserving, protecting and growing its customer base is imperative. Losing the customer base is equal to losing money. This is clear.

   Innovative company brings to the market its new product that can improve satisfaction of customers' needs. Before, people bought products from companies who were already established in the market. Now, they have a choice: to continue buying old products from established companies or start buying new product from innovative company. If customers find out that innovative product provides them with better satisfaction of their needs, they decide to buy new product. It means, they stop buying old products. Innovative company acquires and grows the customer base, while established companies lose their customer base. Success of innovative company causes losses to the established companies.

   Established companies take these losses as a hostile competitive attack on their single source of revenue, profits and income. Is there any reason why they should tolerate such insult and injure to their honest business? Of course, not. What are their options? There aren't so many. Actually, they have only one option: "kill" the hostile competitor, get rid of source of losses, and recover their customer base.

   As a result, established in the market / industry companies have no other choice except attacking the newcomer back with all available legal means. Before, when only few customers were interested in trying the innovative product or service, there was no reason

to spend resources and efforts to attack the disturbing business. Now, when erosion of customer base due to this newcomer's actions has become substantial and continues growing, it is the real time to deal with new competitor. Hence, first substantial commercial success of innovative company serves as a trigger to lethal competitive attacks.

This is why author considers the fierce competitive attacks as an inevitable consequence of first significant commercial success.

5. *Are the suggested strategies useful only at this stage of evolution of innovative business?*
No, they can be used at any stage of evolution of business as efficient way to handle the competition. Examples of companies who successfully used these strategies at their early days show that these companies continue using the same or similar strategies when they become large and well-established, such as Microsoft. As long as company is led by strategic minds, the strategic approach that brought success is reused again and again, as any "best business practice."

6. *Are suggested strategies immutable, i.e. will they be always that efficient?*
No, they are not. The strategies suggested in this thesis are efficient as long as the opposite side continues using the old, well-known competitive approaches in expectation of conventional responses from the "victim." As soon as use of suggested strategic approaches and responses become the common practice among innovative businesses, the large companies would change their strategy. The evolution in this area is pretty similar to the evolution of armor and projectile: the stronger the armor becomes, the stronger projectile is needed to bring damage to an enemy; the stronger projectile is used by enemy, the stronger armor should be used to protect from this projectile.

For example, as soon as large companies acknowledge the fact that small competitors use Fat Product – Lean Process method, they start paying more attention and respect to the "useless" components in product or service design. As a result, the advantage of this strategy will shrink fast. The same is true with other strategies.

7. *So, what happens then?*
Then, the innovative businesses have to find new strategic approaches to survive under competitive attacks. Again, these strategic approaches should be counterintuitive to the competition.

8. *Can you foresee what these next-generation strategies will be?*
I don't know them yet. However, one can apply the same principles that gave birth to the suggested set of strategies to the new strategic situation that emerges when suggested strategies become the common place. These basic principles are simple:

  a. Reveal and resolve the contradictions, "conventional competitive approaches are widely accepted, but don't work anymore";
  b. Develop the counterintuitive solutions to these contradictions;
  c. Select the solutions that exploit the competitors' psychological inertia (rules, beliefs, policies), and put your competition at maximum disadvantage.

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

9. *Then, what is the reason in development of temporarily useful strategies?*
It takes a long time before the business world acknowledges and accepts the strategies suggested here as conventional business practice. It means, the "conventional wisdom" of competitors that these strategies exploit will stay unchanged for a long, although finite time. If some businesses manage to survive during this time by using the suggested strategies, this work was not "good for nothing."

10. *What happens if competitors find out that this strategic approach is used against them?*
Then, these competitors find out also how to block, overcome these strategies.

For instance, they copycat the "fat" product exactly, and then follow the innovative company in its "pseudo-launches" at the same pace and with minimum cost. Then, the innovative company is losing money, and large competitor wins.

Or, for example, the competitor is not scared off by thousands claims in company's patent, and finds the way to legally attack or even infringe this patent. Then, all the money paid by innovative company for this monstrous patent is lost.

Hence, as in military world, in business world there is no such a thing as "unbeatable strategies." To every smart strategy there is a smart response.

11. *What is the reason in development of strategies that can be counteracted by smart competitor?*
The suggested strategies exploit to the maximum extent the currently widespread beliefs and assumptions on the nature and ways of competition. As a result, these strategies become unexpected, counterintuitive to the majority of large competitors, thus providing the innovative company with opportunity to win the competitive battle.

At least, these strategies provide for more chances to win that "conventional wisdom" can offer. Hence, for some period of time, as it was mentioned before, companies that use these strategies have better chances to survive, prosper and expand than those who use conventional competitive approaches.

Here, we are talking about probability of surviving, prospering and growing. We are not talking about "guaranteed recipe." Utopia is not an option.

12. *Have you considered all aspects of business while developing these strategies?*
No. It's practically impossible to consider all aspects, especially ones specific to different businesses. Probably, even some important aspects generally applicable to all businesses were overlooked. So what?

13. *What if you missed something vitally important to survival and growth of innovative business?*
Such an omission would be deadly wrong if I developed the recipe book. This thesis, quite contrary, was developed as an illustration to the basic principles:

   a. Reveal and resolve the contradictions, "conventional competitive approaches are widely accepted, but don't work anymore";
   b. Develop the counterintuitive solutions to these contradictions;
   c. Select the solutions that exploit the competitors' psychological inertia (rules, beliefs, policies), and put your competition at maximum disadvantage.

These basic principles of strategy development are really immutable. Now, in this thesis, they are overtly described and explained in detail, with multiple illustrations in form of innovative, counterintuitive, winning strategies. Strategically-minded business leader can use them to develop the new strategies applicable to the new aspects of business.

14. *Are the suggested strategies the best or the only solutions to the contradictions stated here?*
These strategies are not the only solutions to the business dilemmas described in this thesis. As we know, every contradiction has multiple solutions. Each of them works better under some specific conditions, while under other conditions it might even fail.

The solutions suggested in this thesis seem to be efficient under pretty wide spectrum of conditions. However, the situations where some of these strategies are inefficient or even inacceptable can happen in real business life, too.

Then, the strategically-minded business leader should apply the immutable basic principles used in this thesis, and develop the solutions that work better under the particular conditions his company experiences. The key is to follow these basic principles.

15. *What was the reason to develop the new innovative tools?*
The available TRIZ tools are pretty efficient while addressing the technological problems. However, technological systems are less complicated than multi-faceted business systems. As a result, the business problems that have to take into account all the aspects of business are more complicated than technological problems. Moreover, while solutions to the technological problems usually produce few subsequent problems, the solutions to business problems produce multiple subsequent problems.

The other reason for development of new tools was as follows. Most TRIZ tools are technology-oriented, possibility-oriented. They suggest how the technological system can be improved, what improvements are possible, regardless to the reasons for improvement. User has to select from multiple suggested improvements the ones that might address the particular goals and objectives. This is OK in case of technological problems. However, such orientation doesn't provide good results in case of business problems. Here, we need the customer-oriented, goal-oriented tools that suggest the ways to achieve the goals, to accomplish the objectives and better satisfy the customers' needs.

Hence, the need for development of new tools based on TRIZ and more customer- and goal-oriented.

16. *Was it possible to achieve the same results with existing TRIZ tools?*
Yes, of course. However, it would take much more effort and produce more useless solutions. The new tools are focused on customers and goals, thus they produce fewer useless solutions with smaller effort.

17. *In what aspects the new tools are better than the existing ones? Can you prove that?*
The new tools are not "better," rather they are more specialized, more adjusted to specifics of business situations and problems.

First of all, these tools are more customer-oriented and goal-oriented. It means that these tools take into consideration specific features of human psychology that hinder business innovators' ability to reliably solve their problems. Moreover, these tools take into consideration the customers' immutable desire for getting new products that provide "more capabilities, better quality and convenience, at smaller cost and with fewer problems."

Second, these tools are based on psychological features that lead people to the contradictions and prevent them from seeing all alternatives to any idea. The new tools support people in overcoming directly these fundamental limitations.

Does it mean that these tools are "better"? Not at all. The suggested tools are specialized, although they might have multiple applications. That is why they work more efficiently, i.e. produce the same result with smaller effort, in specific cases. Existing TRIZ tools, on the other hand, were designed as general tools, so they work OK with any application. However, in some specific cases their use requires more effort than use of specialized tools.

18. *Are the new tools applicable to the technological problems?*
    Yes, of course, they are. However, existing TRIZ tools are in most technological cases more straightforward and easy to use.

19. *Have author practically proved the suggested strategies? What were the results?*
    Yes, author conducted several experiments in the real-world projects where he considered some strategies were suitable. Unfortunately, author didn't have any chance to test the entire system of suggested strategies.

    Even in cases when author had a chance to apply one or another strategy, it is still difficult to tell what results were produced and why. Business evolution takes time, and some consequences of strategic actions become visible only later on. So, author cannot say that he personally proved each strategy and all strategies as a system.

    On the other hands, multiple case studies, both "black" and "white" ones, serve as some kind of "proof." Again, it is difficult to find out whether or not one or another strategy was consciously used. But some signs suggest that one or another approach could be used, either consciously or intuitively. If a company repeatedly exploits some course of actions in similar situations, it might mean that some strategic approach is recognized as successful, and is now used intentionally.

    However, it doesn't mean these strategies cannot be used by entrepreneurs right now. Using these strategies provides for much better chances to win than "playing by ear."

20. *It looks like the author suggests entrepreneurs to acquire the immoral behavior such as betraying the partners or using the patent trolls' methods. Is it good for morale of business?*
    First of all, let's define the term "moral" in context of business. Author accepts the libertarian understanding of morality, "dealing with each other in a peaceful, voluntary and honest manner."[24] Again, in this definition "honest" means "free from fraud or deception,"[25] i.e. delivering on promise.

From this standpoint, suggested strategies are moral. They are peaceful, because none of these strategies suggests attacking the competitors with any "force" or lobbying the government to stop competitors. Their realizations are voluntary, because neither customers nor competitors are forced to do something harmful to them. Of course, competitors harm themselves while responding in conventional way to counterintuitive actions of strategy-driven business. But these competitors do that voluntary, the decision to act in such manner is theirs and only theirs. Moreover, the strategies are honest to customers, to competitors and to temporary partners. First of all, these strategies suggest doing everything to continuously improve customers' experiences with company products, which is honest. Second, strategy-driven company never promised to competitors to behave in conventional manner. The only honest competitive promise in business relationships is "fight for survival and growth of my own business," and strategies promote this type of behavior. Third, no contract with any partner says, "we will be together forever, regardless of our business interests." The only honest promise to any business partner is following the agreement as long as it is in the best business interests of each side. So, as soon as "partnership" becomes a burden rather than asset, no business is obliged to continue such relationships.

On the other hand, copying the best business practices that really deliver on specific purposes is always moral, because it is peaceful, voluntary and honest. From time to time, one or another business is labeled "dishonest" or "immoral" by media or politicians or even public opinion. Does it mean this business is really "immoral"? If this business is acting in peaceful, voluntary and honest manner, it is moral, and its methods are moral. Hence, the strategies discussed here are moral from business standpoint.

Are they "fair" to competitors? Of course, not. The only way to be fair to the competitors is not doing any business that competes with theirs. This kind of "fairness" is not an option.

21. *Are the suggested strategies aimed at becoming the monopoly?*

Becoming a monopoly is a business decision made by each company individually. Is it good to be a monopoly? Not at all. Shinichi Yano writes:[26]

"The New Lanchester Strategy sets the upper limit [*of market share – LK*] at 73.9%, and advises against acquiring a share larger than that.

When a company's market share becomes too large,

   a. It becomes difficult to stimulate demand.
   b. The leader comes into competition with other industries or specialties.
   c. The correlation between market share and profitability disappears."

Hence, there is no strategic reason for any successful company to become a monopoly at any given market or market niche. Suggested strategies recommend rather capturing the stable position in multiple markets and niches, thus developing huge customer base.

* * *

Is this list of questions exhaustive? Hardly. Are the answers to these questions "carved in stone"? I don't think so. Time goes on, we change with time, the world changes with time, too. Every day brings us new knowledge, and forces us to change our viewpoints. Those who don't follow this rule stay forever at the shoulder of the road of progress. We, on the other hand, try to keep up with speed of changes in contemporary world. Today, the thesis and answers to the questions reflect my understanding of the topic. Who can guarantee that this understanding won't change tomorrow?

So, please, take this as a current report on ongoing research. I continue this research, and will do it for a long time. This research is challenging, and every day brings exciting discoveries and ideas. Business world evolves, probably, even faster than the rest of the world – and we need to follow this accelerating evolution.

New questions open new venues to the research on winning business strategies. I highly appreciate these questions, objections and critique. It is my opportunity to stay tuned to the evolution of wonderful world of smart business strategies, and provide entrepreneurs-innovators with timely, efficient and counterintuitive strategic approaches. Ask me, challenge me, even contradict me, please!

Referenced Literature

1 Shinichi Yano, *New Lanchester Strategies, Volumes 1-3.* Lanchester Press, Inc, 1996

2 Len Kaplan with Alex Smolkin, *Is Automotive Industry Dead – Or Just Stuck? Future Innovations for New Leaders in Car Transportation*, FutureMapping Series, vol. II. ISBN 978-0-557-06473-1, Lulu, 2009

3 Len Kaplan, *Radio Ads: Dead or Still Alive? Future Innovations for New Leaders in Radio Business*, FutureMapping Series, vol. III. ISBN 978-0-557-06501-1, Lulu, 2009

4 Len Kaplan, *Contemporary Crisis: An Attempt of Strategic Approach.* Strategic Management, 2009, Issue 4(08) (in Russian). Каплан Л.А. Современный Кризис. Попытка Стратегического Подхода. // Стратегический Менеджмент. – 2009 - № 4(08).

5 Clayton M. Christensen, *The Innovator's Dilemma: The Revolutionary National Bestseller That Changes the Way We do Business.* Harper Business, 2000.

6 Len Kaplan, David Verduyn, *FutureMapping: Mapping Trends that have not yet emerged.* Experiential Workshop, Future Trends Conference, November 6-8, 2006, South Beach, Miami, FL.

7 Len Kaplan, *Strategic Innovation: How to Address Unsolvable Challenges,* OutCompete Innovation Series, Volume II. ISBN 978-0-557-04544-0, Lulu, 2009.

8 Anthony Ulwick, *What Customers Want: Using Outcome-Driven Innovation to Create Breakthrough Products and Services.* McGraw-Hill, 2005.

9 Val Prushinskiy, Gafur Zainiev, Vladimir Gerasimov, *HYBRIDIZATION: The New Warfare in the Battle for the Market.* ISBN 1-59872-069-4 (978-1598720693), Instantpublisher.Com, 2005.

10 See, for instance, software *Guided Innovation Toolkit*, Pretium Innovation LLC.

11 Geoffrey A. Moore, *Crossing the Chasm: Marketing and Selling High-Tech Products to Mainstream Customers.* HarperBusiness, 1991.

12 Genrikh Altshuller, translated by Lev Shulyak and Steven Rodman, *The Innovation Algorithm: TRIZ, systematic innovation and technical creativity.* Technical Innovation Center, Inc., 1999.

13 Len Kaplan, *Strategic Innovation: How to Address Unsolvable Challenges,* OutCompete Innovation Series, Volume II. ISBN 978-0-557-04544-0, Lulu, 2009.

14 Geoffrey A. Moore, *Inside the Tornado: Marketing Strategies from Silicon Valley's Cutting Edge.* A Harper Business Book, 1999.

15 Clayton M. Christensen, Michael E. Raynor, *The Innovator's Solution: Creating and Sustaining Successful Growth.* Harvard Business School Press, 200X.

16 *Tools of Classical TRIZ.* Ideation International Inc., Southfield, MI, 1999.

17 Wikipedia, http://en.wikipedia.org/wiki/Evangelism_marketing.

18 Ben McConnell and Jackie Huba, *Creating Customer Evangelists: How Loyal Customers Become a Volunteer Sales Force.* Dearborn Trade, 2002.

19 Boris Zlotin, Alla Zusman, *Solving the Research-type Problems.* Kishinev, 1991 (in Russian: Борис Злотин, Алла Зусман, *Решение Исследовательских Задач.* Кишинев, 1991).

20 Thomas A. Schweich, *Protect Yourself from Business Lawsuits: An Employee Guide to Avoiding Workplace Liability.* Simon and Schuster, 1998.

21 Elroy Carter, *Aiming Beyond the Target.* http://www.winwenger.com/aiming.htm.

22 Rob May, *Please Stop With Your Chinese Math.* http://www.businesspundit.com/please-stop-with-your-chinese-math/.

23 Anthony Ulwick, *What Customers Want: Using Outcome-Driven Innovation to Create Breakthrough Products and Services.* McGraw-Hill, 2005.

24 David Bergland, *Libertarianism in One Lesson.* Fourth Edition. Orpheus Publications, 1989.

25 Merriam-Webster Online Dictionary, http://www.merriam-webster.com/dictionary/honest

26 Shinichi Yano, *New Lanchester Strategy, volume I.* Lanchester Press Inc., 1990.