

Innovating Social Media Marketing Strategy via TRIZ Approach

by Konstantinos Stamatopoulos, Monica Karakoglou, and Dimitra Gogolou

At a Glance . . .

- The theory of inventive problem solving (TRIZ) was developed by Genrich Altshuller, a Soviet inventor and science fiction writer. TRIZ is a problem-solving, analysis, and forecasting tool derived from the study of patterns of invention in the global patent literature.
- The first step of TRIZ is to define the problem and the expression of its contradiction in a clear and simple way.
- The second step is to view the problem as a system and monitor all the interactions and the stakeholders that may exist. This is best done using the nine windows technique.
- The final step is to find the principles most applicable for the respective problem in order to develop innovative ideas for improvement.

Abstract

This case study is an illustrative example of the implementation of theory of inventive problem solving (TRIZ). The project derived from a two-day workshop held by Sunil Kaushik at the University of Piraeus during the **2017 Quality Days conference** in Athens, Greece. Participants of diverse backgrounds and different ages worked together to verify if the TRIZ approach can be applicable on business strategies.

The team's project was to create a social media marketing strategy for electric folding bicycles, with the goal of generating 100,000 social media followers. After defining the target, the team analyzed their system through a combination of the nine windows tool and TRIZ's basic principles. This provided the team a detailed picture of the project and thus, following different standardized steps, to come up with several different innovative ideas for the social media strategy.

Introduction

The theory of inventive problem solving (TRIZ) is a problem-solving analysis and forecasting tool developed by Genrich Altshuller, a Soviet inventor and science fiction writer. Altshuller derived this tool from the study of patterns of invention in the global patent literature.



TRIZ is unique due to its approach of “what a problem is.” Specifically, TRIZ faces all potential problems as a contradiction of two different situations that cannot be implemented commonly together.

As a tool made by engineers for engineers, the 40 principles of TRIZ may appear, on first glance, to be industry oriented. However, this case study shows how workshop participants had the opportunity to challenge these principles and demonstrate how they could be applied to the business sector or even every-day problems.

TRIZ can be carried out in three main steps. The first and most significant step is to define the problem and the expression of the contradiction in a clear and simple way.

The second step is to face the problem as a system and monitor all the interactions and the stakeholders that may exist while zooming in and out of the system within time. Nine windows is the most appropriate technique for such an analysis (and will be described in detail in this case study).

The third and final step is to find the most powerful principles applicable for the respective problem and easily to come up with innovative ideas for improving the strategy.

Nine Windows

Nine windows is a TRIZ tool that helps users separate the problem into space and time. We create, as the name implies, a “nine windows board”—a 3x3 matrix, in which the columns represent the time and rows represent space.

The three columns are named, respectively, “Past,” “Present,” and “Future.” Each row is named “Super or Macro System,” “System,” and “Sub or Micro System.”

(“Sub or Micro System” contains the parts that make up the “System,” and “Super or Macro System” contains the environment in which the system functions.)

The problem is listed first, in the Present/System cell. To complete the System row, list what started the problem in the Past/System cell, and then list the goal—where the project will ideally end up after the solution—in the Future/System cell.

To complete the Super or Macro System row, first list everything one would do to prevent the current problem (in the environment that the system functions) in the Past/Super or Macro System cell. Next,

list everything one can do to fix the problem going forward in Future/Super or Macro system cell.

To complete the nine windows, one must fulfill the Sub or Micro System row. To do so, list everything one could do in the past to prevent the problem in the Past/Sub or Micro System cell. Then, list everything one can do in the future (if the problem still exists), in the Future/Sub or Micro System cell.

Forty Inventive Principles of TRIZ

After researching hundreds of thousands of patents, Altshuller identified 40 TRIZ principles. He concluded that new innovations would be based on these principles: the 40 inventive principles of TRIZ.

In the workshop, the participants understood that hundreds of thousands of patents divided by those 40 principles can provide the need behind why those patents were created, or the problems that they had to solve.

In mathematical terms, if “**A**” are the hundreds of thousands patents, “**B**” are the 40 principles, and “**C**” the need of the patents or the problems that had to be solved, the equation would be $A/B=C$. Continuing this, $C*B=A$.

With this formula, individuals can apply any problem to those 40 principles and have an enormous number of innovations and, ultimately, solutions.

Workshop Goal: Gaining Social Media Followers

Workshop participants served as the Social Media Digital Marketing workgroup of a large organization that produces electrical folding bicycles in Europe. The problem, or goal, was to reach 100,000 social media followers by year-end.

The participants worked to overcome this problem and reach their goal using TRIZ. The first step was to populate the nine windows matrix, and then apply the 40 TRIZ principles (to cells and not factors, due to time constraints).

Applying the TRIZ Principles

Although there are 40 principles of TRIZ, the workshop participants only used about a dozen of them, for different purposes.

Segmentation

The first principle the participants used was **segmentation**. Individuals can divide an object into independent parts, make an object easy to disassemble, or increase the degree of existing fragmentation or segmentation.

The parts that can most affect the expansion of the new social media marketing strategy are in the cells **Past, Present, and Future/Super or Macro System** and **Past, Present/Sub, or Micro System**. The items in each cell can be

	Present	Future
System	Social media marketing strategy	100,000 social media followers (digital customers)

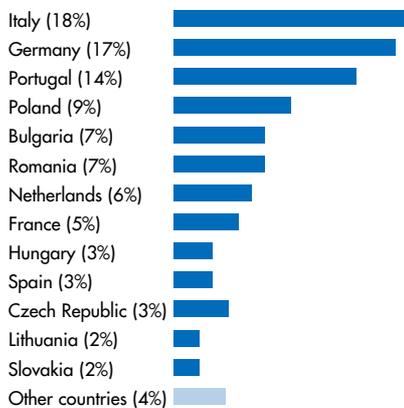
After we put the facts we started filing all the nine windows:

	Past	Present	Future
Super or Macro System	Competition, other brands, the need (demand)	Customers, social media	Customers, social media
System	Product (electrical folding bicycles)	Social media marketing strategy	100,000 social media followers (digital customers)
Sub or Micro System	Cost of the productions, components	Markets, target groups, demand factors, contents, digital strategy	Likes, posts, shares, comments

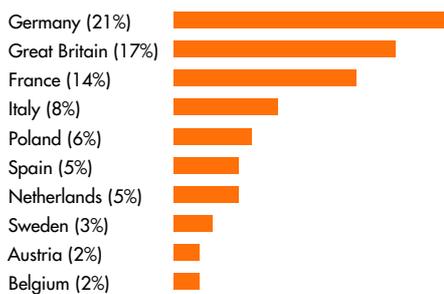
further segmented. For example, “competition” can be segmented by folding, electrical, and regular bikes; “customers” segmented by age or by geographical area; “social media” segmented by Facebook, Twitter, Instagram; and so on. (Note: Before the items can be segmented, the market needs to be established. The workshop participants looked at Europe.)

Following the principle of **segmentation**, the workshop participants divided the competition and what types of bicycles other brands were producing so they could determine the demand of each type of bike. The participants also arranged our present customers, target groups, and markets by age, geographical area, and income so they could know where, when, how, and with what intensity the digital strategy and social media campaign would affect them.

The competition was also divided by countries. In 2015, European countries that produced bicycles and their production percentage were:



The demand of 2015 was divided by European countries:



In 2015, 13,149,000 bicycles were produced, a 10.14% increase from 2014. In 2015, 20,751,000 bicycles were sold, which was a 2% increase from 2014. (The difference between production and demand is because of the secondary market, in which bikes are resold to Europe from foreign markets.)

Taking Out

The second principle participants used was “**taking out**.” Taking out separates an interfering part or property from an object, singling out the necessary part (or property) of an object. For example, organizations can take out or remove the target groups they do not profit from, or as the workshop participants did, take out social media streams that are not appealing to the target audience.

Due to the small percentage of the market, the workshop participants took out all the European countries whose demand was less than 5% of the total European demand (Austria, Belgium, Croatia, Czech Republic, Denmark, Hungary, Portugal, Romania, Slovenia, Sweden, and all the other countries that together in total have 3%.)

This left France, Germany, Great Britain, Italy, the Netherlands, Poland, and Spain, which in total provided 76% of total European demand on bicycles.

Local Quality

The third principle the participants used was **local quality**. Local quality entails changing an object’s structure from uniform to non-uniform; changing an external environment or external influence from uniform to non-uniform; to make each part of an object function in

conditions most suitable for its operation; and to make each part of an object fulfill a different and useful function.

For the workshop participant’s social media marketing project, this was applied to shares, posts, or comments surrounding bicycle promotion.

With local quality, the participants were also able to change the basis of their digital strategy, leveraging different causes to help promote the bicycles. For example, the company could:

- Partner with environmental organizations to benefit both the cause and the bicycles.
- Promote specific characteristics of the bicycles (e.g., folding ability) to target people with limited storage space in their homes and/or workplaces.
- Create lotteries (to win a bicycle) in social media via likes and shares.

Asymmetry

The fourth principle the participants used was **asymmetry**. To change the shape of an object from symmetrical to asymmetrical and in the case an object is asymmetrical, increase its degree of asymmetry. **Asymmetry** already exists in target groups, markets, demand factors, and more. In those cases where asymmetry already exists, one can magnify it to the maximum extent to get as many diversities as possible.

The workshop participants used asymmetry to help understand and market the bicycles to different groups. For example, marketing to buyer vs. marketing to seller, or marketing to males vs. females and vice versa.

Merging

The fifth principle the workshop participants used was **merging**. The goal of merging is to bring closer together—or merge—identical or similar objects or operations. For example, adding a spare base that allows the electrical bike to

become stable for use as a piece of at-home exercise equipment.

Universality

The sixth principle the workshop participants used was the **universality principle**. It is based on the modification of a product or a project so as to make multiple functions. In terms of engineering, an illustrative example would be a Swiss Army knife.

The application of this principle can appear both for the product itself and the social media marketing strategy. In the first case, the product can cover different needs, such as transportation, exercise, and portability. Similarly, the bicycle could also be transformed with the addition of a spare base, making it stable for home exercise use.

In the second case of social media, universality can be applicable to demand forecasting. This can impact strategy deployment, as well as performance of product variations. In addition, it can also be used to direct different strategies for different target groups. For example, for people who want to use the bicycle for home use only, marketing efforts can highlight that—with a simple part addition—the bicycle could also be transformed into a stable piece of exercise equipment suitable for their needs.

Nested Doll

The **nested doll** is the seventh principle the workshop participants used. It is the placement of one product or multiple products into other(s). For the social media marketing project, the team split different parts of existing subsystems into other smaller parts, and these parts into even smaller sub-systems, while all still belonged to one common group.

An example is the goal of 100,000 social media followers. These 100,000 followers should be first split geographically. Next, each geographically separate group could be split in sub-categories according

to age. At a third level, or split, each subgroup could be divided according to the social status. They can be divided, and yet still join together, just like a *matryoshka* (nested) doll.

With the nested doll, we can divide the demand into smaller sub-systems. We can divide the people who we must engage into smaller groups proportional with the countries we target.

First, the participants determined how many bicycles were sold in 2015 in each of the target group countries.

Second, the participants determined the total demand for those countries.

They were then able to determine how many new social media followers they would need to obtain in each country in order to reach the goal of 100,00 followers.

Anti-weight

The eighth principle the participants used was **anti-weight**. In engineering terms,

anti-weight is the compensation of the weight of an object or the merge of the last with another project to provide lift. In business terms, anti-weight is anything you can provide as an action to balance a system when possible “bottle-necks” occur.

An example is launching a new social media strategy when likes, comments, or shares decrease periodically. This is a smooth action to balance the system to its normal level. Another example of the anti-weight principle is partnering with another organization and exchanging ads on each other’s websites.

Prior Counteraction

The ninth principle the workshop participants used, the prior **counteraction principle**, is based on the on-purpose performance of counteractions to control harmful effects in a system when an action that normally occurs creates both harmful and useful effects.

In other words, if a team knows the weaker points of the system, it could

“Nested Doll” Geographical Split Equations

Target group country	Total bicycles sold in 2015	Target country’s percentage of total bicycles sold in 2015	Total bicycles sold in target country in 2015
Germany	20,751,000	x 21%	= 4,357,710
Great Britain	20,751,000	x 17%	= 3,521,670
France	20,751,000	x 14%	= 2,905,140
Italy	20,751,000	x 8%	= 1,660,080
Poland	20,751,000	x 6%	= 1,245,060
Spain	20,751,000	x 5%	= 1,037,550
Netherlands	20,751,000	x 5%	= 1,037,550
			Σ = 15,764,760

Target group country	Total bicycles sold in target country in 2015	Total bicycles sold in all target countries in 2015	Follower goal Σ = 100,000	New followers required
Germany	4,357,710	/ 15,764,760	x 100,000	= 27,642
Great Britain	3,521,670	/ 15,764,760	x 100,000	= 22,339
France	2,905,140	/ 15,764,760	x 100,000	= 18,428
Italy	1,660,080	/ 15,764,760	x 100,000	= 10,530
Poland	1,245,060	/ 15,764,760	x 100,000	= 7,898
Spain	1,037,550	/ 15,764,760	x 100,000	= 6,581
Netherlands	1,037,550	/ 15,764,760	x 100,000	= 6,582

stress the system toward a specific direction in order to obtain balance. For the social media strategy, the workshop participants defined the product's potential weak points and adapted the social media strategy accordingly.

For example, a perceived weak point of the bicycles may be that they are not electric. Potential buyers may wonder what the differences are between bicycles, electric bicycles, and motorcycles.

In order to clarify the issue, an aggressive social media video campaign could give an answer with a concept-comparison of the three products in a sarcastic or humorous way. This could be a first "stress" of the viewer to obtain balance and clarification about the product (the bicycles).

Prior Action

The 10th principle the workshop participants used was the **prior action principle**. With this, the participants focused on advertising *before* launching their product. They created audience anticipation and eagerness with targeted posts, branded hashtags, and keywords. In addition, they created a plan to interact with customers before the product was commercially available, so as to build strong engagement.

The participants also used the prior action principle to raise awareness at a particular time. For example, 50% of all bicycle theft in European cities occurs between May and August, and September has the most reported thefts. The team mapped out a large social media campaign to launch prior to May and run through September. The campaign would highlight the fact that the product, folding bicycles, can be easily transported and stored in houses and offices, thus reducing the chances they would be stolen.

Equipotentiality

The 11th principle the participants used was the **equipotentiality principle**. The definition of this principle is to limit

position changes in a potential field (e.g., change operating conditions to eliminate the need to raise or lower objects in a gravity field). The team considered as a tool to exchange advertisements with other websites or translation to the local language of each target market.

Dynamics

The 12th principle the participants used was the **dynamics principle**. The definition of this principle has three dimensions. The first is to design the characteristics of an object, process, system, or external environment in order to become optimal or reach an optimal operating condition. For example, to adapt to a highly competitive business environment with dynamic customers, the team must determine the needs and steadily increase expectations and/or design strategy for specific niche markets. Dynamics can also be applied into mass customization or into flexible policy for price vs. quantity, such as seasonal pricing.

Second, dynamics principles divide an object or system into parts capable of movement relative to each other. Third and finally, if an object, process, or system is rigid or inflexible, the dynamics principle makes it movable or adaptive.

For social media marketing, dynamics can be applied in mobile retail, the electronic trade with mobile purchase and delivery to a client's home, and animated advertisements.

To carry out this principle, the team developed an online game that customers will use, and in turn, the game will help gather valuable customer feedback. Through this, the team can listen to the voice of the customer more effectively and tailor their products to the customers' needs.

Color Change

The final principle the participants used was the **color change principle**. By doing this, the team can target different audiences (e.g., using pink on the bikes to appeal to girls and women). The color principle also helps the team create a very branded, memorable product. This principle also helps customers and potential customers find the product much more easily.



New Ideas “Production” and Evaluation

Principle	Ideas created	Score
Segmentation	Division of the competition to determine the demand of electric folding bicycles (e.g., normal bike, electrical bike, folding bike, and all of their combinations)	
	Division of target groups by age, income	
	Division of target groups by geographical area (e.g., Amsterdam, all other European countries)	
	Division of target groups by areas with increased levels of bicycle thefts	
Taking out	“Take out” all the components that came with segmentation and don’t have any profit	
	“Take out” from our competition monitoring all the other brands that gain small pieces of the “demand”	
	Exclude all the divisions created through segmentation and that are too small to have any kind of profit	
	“Take out” of the digital strategy and the content of the social media campaign that don’t have the biggest impact to the audience and more specifically to the market	
Local quality	Promote environmental causes to appeal to more customers	
	Create arrangements with nonprofit environmental enterprises so that they could promote the organization’s bicycles while we promote their cause	
	Schedule group bike rides and promote the product there or create lotteries in social media	
Asymmetry	Evaluation of target groups by age and split them asymmetrically (e.g., younger group, more investments; older group, less investments)	
	Evaluation of already established markets and support according to the dynamics of each	
	Asymmetrical approach and re-evaluation of the content of the digital marketing strategy according to results provided every month	
Merging	Monitoring comments/shares/likes/follows of the competition to evaluate the engagement of consumers according to the relative strategy implemented by every company	
	Implementation of decreasing cost strategy of the company in collaboration with digital marketing strategy	
	Monitor focus groups to better understand the way individuals of different target groups are “scrolling down” via social media	
	Addition of spare base allowing the electrical bike to be stable and used as an exercising tool at home	
Universality	Forecast of demand not only for the implementation of the appropriate strategy, but also for the possible performance of different manufacturing types	
	Universality of the knowledge about needs of different target groups. For example, if people over 45 are a group with low priority, this can be good information for changes and improvements of the product to be more challenging for older people (i.e., used for home exercise only)	
Nested doll	Marketing monitoring division on target groups, target groups on potential customers, and potential customers to need to be covered	
	Periodical split of 100,000 followers, geographically, then sub-divisions to age, and finally to social status	
Anti-weight	Launching of a new social media customized strategy when likes, comments, or shares decrease periodically	
Prior counteraction	Aggressive video advertisement on social media to sarcastically compare bicycles, motorcycles, and electric folding bikes	
Prior action	Posts, hashtags, and other keywords to create eagerness via advertising before the launch of the product	
Anti-weight/ Equipotentiality	Exchange of advertisements of comments on social media with other companies’ sites on a permanent basis	
Dynamics	Online game that will actively interact with customers to gather important information about their feedback	
Color change	Pink bikes to target to girls and women as potential customers	

In this two-day workshop participants analyzed only 14 of the 40 principles, but were still able to reach to average of 66% of total innovations that could be generated with all 40 principles.

Conclusion

The workshop project enabled people from different backgrounds to work together on a totally new case study. What should be noted as the most significant points of this project is that TRIZ as a tool made by engineers for engineers can actually be implemented in problems of all sectors—even everyday problems.

The required steps to ensure the tool is effective are first to define the problem accurately, second to create the “environment” of the problem on space and time so as to have a clear picture of all the interactions, and finally to find the way to evaluate which parameters are more effectively applicable to every new issue that comes up.

This analysis was valuable for the needs of our case study. Our team devised many innovative ideas, which is not easy to think about without such a technique. TRIZ, as per our experience, is the only way “not to think out of the box, but expand the box with a method.”

Disclaimer

Some data was taken from Confederation of the European Bicycle Industry (CONEBI); the authors cannot claim its absolute accuracy.

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