

TRIZ to Support Creation of Innovative Shared Value Business Initiatives



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1 Introduction

Creating shared value (CSV) is a relative new concept that has captured attention of many companies' executives, as a more business-oriented alternative to the concept of corporate social responsibility (CSR). The concept of CSV was formulated and marketed by Porter and Kramer [1]. Shared value is a managerial strategy focused on creating measurable value for companies by identifying and addressing social problems that intersect business [1]. In other formulation, shared value is about searching for business opportunities in social problems. CSV is a concept that leads to economic value creation by social value creation [1, 2].

According to Porter and Kramer, shared value creation requires innovations into one or more of three possible directions [1, 3]. One way is to rethink needs, markets and products by developing new products for social needs [1, 2, 4]. The second way is to redefine productivity in the value chain by promoting new practices for better use of human resources, materials and partnerships [1, 5, 6]. The third path is to develop local clusters by improving innovation and productivity in local firms [1, 6].

To generate shared value, four elementary steps have to be followed: (1) identify the social issue to target; (2) make the business case; (3) track progress; (4) measure results and use insights to unlock new value [7]. There are various examples of companies that succeeded to create business value from social problems [5–7], but no scientific paper indexed in international databases such as ISI Web of Science, Scopus, Inderscience has reported till now a structured approach to define innovative shared value business initiatives.

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It is the purpose of this paper to introduce a methodology that systematically analyses the frame revealed by the shared value concept and unveils clear patterns of ideation towards businesses that can both solve social challenges and generate profit for companies. The research focus is upon all three areas where shared value creation can be manifested: product, value chain productivity and economic cluster development.

In order to introduce the methodology, the subsequent part of this paper is organized into the following sections: a section that analyses shared value concept for revealing possible contradictions and formulating innovative areas of intervention, a section that describes the methodology, a section where theory is put into practice, a section of discussions around the results from case studies, and a section of conclusions, critical analysis of the methodology and perspectives on future developments.

2 The Challenge of Creating Shared Value

Creating shared value is neither philanthropy nor actions of social responsibility [1]. CSV is a very profound concept that challenges intellectual and moral potential of business makers. It asks to formulate any business in a way in which its profit incorporates both societal advancements and faster growth of the business [5]. This paradigm is an invitation to outthink new business models, products and business environments.

The Cartesian mode of business thinking considers profit as the difference between price—in relation with the value perceived by customers—and the cost to produce that value. This is obviously true, but in this equation the societal value of the customer's perceived value is omitted. There are many products in the market with high commercial success, but with poor or no societal value; and in many cases, with negative societal value that worsens our society.

The non-linear mode of business thinking claims that it is possible to design businesses in such a way that they are capable to solve societal problems and/or improve societal welfare while simultaneously increase profitability. This requires smart innovations such as to increase profit as a result of more and differentiated value with lower costs; and/or promoting businesses that address societal problems in a profitable way; and/or creating business value networks that include in the economic activity local communities where products are going to be sold.

From this perspective, CSV is a totally different concept than CSR, as long as the last one is about a moral duty of a company to protect the general interest of society while doing businesses. From the perspective of CSR, companies should take actions for improving societal welfare and avoiding environmental degradation in the same time [8].

Advocates of corporate social responsibility claim that creating shared value is not a new concept, but only a rebranding of CSR [9, 10]. This divergent perspective might occur from the difficulty to capture the whole profoundness of the message inherited in CSV; that is, from the point of view of this paper, CSV is about businesses

that have no negative influence on society's morals (both because of their types and of the modes they are conducted) and about more and smarter innovations such as to provide sufficient value to society without affecting a lasting survival of the business (e.g. capacity to sell at affordable prices for any particular market—including the emerging ones—but with sufficient profitability for company).

With these issues in mind, the CSV concept relieves the following challenging issues for business creators and entrepreneurs:

1. How to create honest profit focusing on current societal problems while generating better welfare and more socio-economic opportunities for the envisaged community?
2. How to generate more value for customers at lower costs and sell this value at affordable prices such as even the low-end consumers to get a high value from the business?
3. How to involve consumer in the economic process of value creation such as to offer local jobs as a consequence of that business?

The three questions above mentioned have a correspondence in the TRIZ Contradiction Matrix [11]. This issue is highlighted below:

- Reduce “harmful” societal factors without diminishing “amount of substance”/ money/profit
- Reduce “criticality” in society without affecting “amount of substance”/money/ profit
- Increase “adaptability of the system” without affecting “amount of substance”/ money/profit
- Increase “capacity/productivity” without increasing “effort” involved
- Increase “capacity/productivity” without affecting “strength” of the system
- Increase “volume” of advantages without affecting business “durability”/ sustainability
- Increase “amount” of work done by local firms without affecting “reliability” of the system

The conflicting issues from above are further deployed into TRIZ Contradiction Matrix [11]. The pairs of TRIZ parameters are: 30-26; 35-26; 39-19; 39-14; 7-15; 26-27, as they are coded in TRIZ [11]. After systematization, results are visualized in the following list:

- AI1: Change system properties (flexibility, conditions, state, etc.)
- AI2: Reconfigurable construction and dynamicity
- AI3: Use permeable units
- AI4: Use “centrifugal forces” and cyclic actions
- AI5: Arrange parts in advance to act from the best position
- AI6: Use external motivators
- AI7: Exploit resonance
- AI8: Make the system asymmetric
- AI9: Composite structures

The generic inventive principles in the above list describe areas where ideas for CSV-driven businesses would be formulated. The open issue is how such generic areas of investigation can be particularized for various business domains. It is the purpose of the next section in this paper to highlight a possible path for achieving this target.

3 Design Methodology of CSV-Driven Businesses

The design methodology of CSV-driven businesses starts with the definition of the business domain. In theory, any business domain should be a generator of CSV; thus, any type of business could be taken into account in a CSV process. Illustrative examples of business domains are: software development, education, earth mining, beverage production, food production, transportation, showbiz, etc.

The next step of the methodology analyses into detail market segments that are addressed by that business and tries to understand their challenges in terms of more welfare and societal manifestation. “Go-to-gemba”, as Japanese say, is a very powerful tool to identify societal problems in a given market segment [12]. For example, a PLM software producer that addresses its solutions to engineers might see a social problem in terms of spine and eyes health issues due to the fact that the target users concentrate too much on the screen and stay too much time on chairs in less ergonomic positions. In order to create shared value, the PLM software producer should provide some special accessories to the traditional software tool, such as anti-radiation glasses, pulse track smart sensors and alarming boxes against static stress, but also to design the user interface in such a way it is easy readable and pleasant to eyes, etc. If the interface is also optimized in terms of minimizing the steps for performing various tasks and recovery in case of mistakes, more shared value is introduced in the solution. If the users would be paid with different bonuses (e.g. free training) for valuable feedbacks to improve the PLM system, the level of shared value is further increased.

Once societal problems are identified, the areas of intervention that have been introduced in the previous section are mapped over company’s product portfolio. At the intersection boxes between each product and each area of intervention, every societal problem in the list must be considered and ideas for CSV have to be formulated in the spirit of the suggested trend of those areas of intervention.

In order to enhance the basin of investigations, every identified societal problem will be deployed into new product ideas—keeping bordered the generic domain of expertise of the company—by means of a toolbox of disrupting vectors. These vectors can be collected from various methods and tools of creative thinking. In this paper, a toolbox consisting of ten disrupting vectors is introduced, namely: 1) activate resonance; 2) introduce neutral elements; 3) act against the wolf-pack spirit; 4) use centrifugal forces; 5) apply multi-level connections; 6) use asymmetry; 7) harmonize individual goals with collective goals; 8) consider financial feasibility with real options; 9) prisoner paradox; 10) shipwrecked paradox [13]. Prisoner paradox is

about the exploitation of only existing local resources to solve a problem by intelligent rearrangement and use of those resources [13, 14]. The shipwrecked paradox is about the transformation of some local negative factors into positive factors by identifying hidden value networks [13, 14].

To give an extreme example, let us consider a company that manufactures missiles for supporting military fights in urban areas. The social problems with these kind of products are related to issues such as human injuries, people killing, destructions of buildings, sufferings for lost lives, etc. Application of the disrupting vector “activate resonance” would suggest the development of smart missile systems able to recognize civilians and capable to direct and concentrate the blast only on military targets. Application of the disrupting vector “introduce neutral elements” would suggest the development of smart missile systems capable to detonate only if they “feel” the presence of explosive chemical substances such as gun powder or others in the same range. Thus, injuries on civilians would be dramatically diminished in the conflict zones. Moreover, applying the disrupting vector “harmonize individual goals with collective goals”, which means a space without conflict, the idea is that, besides developing smart missile systems, to invest in easy mountable, reliable and cheap camping solutions for civilians that are called to shelter in advance of a potential military incursion in an urban area. This would reduce the time necessary to solve a conflict, as well as the related costs.

New business ideas generated in the previous step are systematically analyzed for feasibility. In this respect, the following question-based framework is proposed:

Group A: Factual analysis

- Which are the basic resources you need to start?
- Which is the interest/motivation?
- Who else can be attracted in this business with no difficulty?

Group B: Emphatic analysis

- Did you identify all beneficiaries?
- Which is the value added for beneficiaries?
- How beneficiaries would react to this product?
- Would beneficiaries involve in product co-creation?

Group C: Critical analysis

- What barriers do you envisage in implementing the business (any kind of barriers)?
- Who would have the interest to block this business and why?
- From what sources it will be ensured business sustainability?
- What risks would be in place?

Group D: Benefit analysis

- How large is the market?
- What complementary businesses would be run?
- What new businesses would emerge and how large?

- How much sophistication?
- What about profitability level?
- What new businesses would occur from the results of this business?

Group E: Processual analysis

- What steps should be followed?
- Which would be the first steps?
- Who will be involved before starting the business?

Group F: Creative analysis

- What ideas do you have to overpass barriers?
- What leverage effects do you see?
- What new opportunities could be born?

For the last group of questions (Group F), TRIZ method can be further considered in order to formulate inventive solutions to the barriers that are identified.

4 Illustrative Example

To illustrate how the methodology works, two case studies from the IT industry are further introduced. Both companies included in these case studies are software development companies, with a special focus on software services.

In the first case study, an opportunity occurred in a public financed project where the goal was to mix the IT sector with the agriculture sector, in the attempt of setting up an emerging industry called agriculture 4.0. The market envisaged in the project covers the Balkans and Black Sea Region. This region is characterized by emerging economies. In this context, the company has investigated the possibility to develop a software system with application in agriculture. The target market consists of agro-food producers and consumers.

Face-to-face discussions with representatives from the two groups revealed several social problems. In the case of small farmers the major problem was related to unfair practices of the retailers in the public agro-food markets and supermarkets, which either oblige local farmers to sell their products at very low prices and/or block local farmers to showcase their products in the markets—their place being taken by intermediaries. Intermediaries raise prices and sell products of lower quality—mass produced in different places of the globe. Due to the lack of alternatives, consumers are somehow forced to buy poor quality and unhealthy products (with a lot of pests and other chemicals inside), while paying high prices—that exceed, in many cases, prices from Western countries.

Company's current portfolio is: P1: web applications; P2: database systems; P3: process management platforms; P4: financial management platforms. Table 1 shows the map between the generic areas of intervention and company's current product/service portfolio.

Table 1 Mapping of current product portfolio and areas of intervention

	P1	P2	P3	P4
AI1	SP1	–	–	–
AI2	SP2	–	–	SP2
AI3	–	SP1/SP2	–	–
AI4	–	–	–	–
AI5	SP1/SP2	–	–	–
AI6	–	–	–	SP1/SP2
AI7	SP1/SP2	SP1/SP2	SP1/SP2	–
AI8	–	–	–	SP2
AI9	SP1	–	–	–

Denoting with SP1 the social problem “no reliable retail channels” and with SP2 the social problem “poor quality/unhealthy products a high prices”, and based on creative judgement of possibilities, some boxes in the matrix from Table 1 indicate where innovations would be considered for CSV solutions.

The map from Table 1 reveals points where different inventive vectors (AI1 ÷ AI9) can be applied on the current portfolio of the company to propose CSV-driven solutions. In principle, all boxes of the matrix can be investigated. Actually, all boxes have been investigated in this case study, too, but some of them have been finally removed due to the lack of innovative ideas. Examples of reading information from Table 1 are further given.

The box AI1-P1 applied on SP1 suggests the development of a web platform for small farmers where they can introduce information about their products. In this case, AI1 “change conditions” was interpreted as a new environment where farmers can promote their offers.

The box AI2-P2 applied on SP2 suggests the development of a mobile app where consumers can introduce and find information about prices of various products in different places, thus generating an indirect pressure for price regulation. In this case, the vector AI2 “reconfigurable construction and dynamicity” was the source of inspiration for the mobile app where consumers can be contributors themselves. The other boxes followed a similar stream of ideation, but details are not introduced here.

In order to enhance the searching area for new products, the toolbox of ten disrupting vectors has been considered for the two major social problems SP1 and SP2. Only some of the results are further introduced.

Thus, the application of “activate resonance” led to the idea of putting in direct contact small farmers and consumers from the urban areas using a web platform/mobile app, thus removing retail intermediaries. Of course, this idea must be further elaborated to reveal the whole value chain of the new business.

Applying to this idea the disrupting vector “introduce neutral elements”, the concept is enriched with the idea of including a quality certification body in the ecosystem, for issuing quality certificates, as well as online feedback of beneficiaries. Continuing the reasoning and adding the vector “act against the wolf-pack spirit”, the solution was enhanced with the idea of allowing any producer to use the

platform for free up to a certain level of trade, and then allowing to purchase customized vouchers. The vector “use centrifugal forces” suggested the opportunity to upload additional information for product traceability over its life time.

“Multi-level connectivity” induced the idea of setting up strategic partnerships with non-conventional channels of promotion, such as churches from the rural areas, associations of volunteers, etc. It has also shown the need to activate the value chain by including a customer care center, networks of door-to-door transporters, producers of smart refrigerating boxes for temporary storing of products, etc. “Asymmetry” led to the idea to allow consumers having the possibility of calling in advance (based on pre-paid vouchers and hidden identity) future products (types, quantities, qualities), such as producers might pro-actively act and start deals in advance (using the agro-stock web system).

Combining all ideas relieved both from Table 1 and from the use of toolbox of disrupting vectors, the vision of the new business looks like: “An agro-stock market using a web and mobile software system that puts in direct contact small farmers and urban consumers for direct procurement of agro-food goods, with online support, with possibility for just-in-time door-to-door delivery using a smart distribution and storing network, as well as with feedback loops for quality guarantees and highly competitive prices”.

In order to transcend the stage of business vision and formulate a reliable business model, the list of questions promoted by the methodology has to be further tackled. Results at this stage of the methodology are displayed in Table 2.

For the set of barriers highlighted in Table 2, TRIZ Contradiction Matrix was considered. Thus, the challenge in this case study is how to activate both producers and consumers to make deals using the dedicated web platform.

There are many web platforms where offer and demand meets for various products and services. TV marketing campaigns are usually considered in such cases for activating the two categories of stakeholders.

In this case, the challenge is to identify cheaper ways of marketing campaigns, but other issues are in place, too. For example, small farmers have poor skills to use web platforms and are reluctant to use them because they do not understand the system and the business model behind. Thus, support and guidance for producers is essential. Consumers, at their turn, should reach a critical mass in the incipient phase of business launching, such as to signal the existence of a market.

Application of TRIZ Contradiction Matrix to this case looks like: “area covered by dynamic elements” vs “effort spent to activate dynamic elements”. The related inventive principles are: “periodic action”, “change the transparency of the system” and “use additives to reveal parts of the system that are difficult to see”. Based on these guidelines, the following ideas of action have been considered:

- Introduce a business unit responsible for activation that periodically contacts consumers via telephone, email, mobile marketing channels and social networks to inform about the existence of platform and its benefits
- Introduce a network of partners (NGOs, volunteering associations, other social initiatives, etc.) responsible for promoting the platform among producers and

Table 2 Feasibility analysis of business idea

Question	Solution
Which are the basic resources you need to start? Which is the interest/motivation?	Web portal/mobile app/partnership logistic network Quality of products/price/sometimes the lack of time
Who else can be attracted in this business with no difficulty? Did you identify all beneficiaries?	Small farmers/local dealers that compete with supermarkets/niche stores A: Families in urban areas with a certain level of education/some restaurants/some hotels/some private schools B: Small farmers
Which is the value added for beneficiaries?	A: Healthy food/traceability B: Better chances to sell at the correct price
How beneficiaries would react to this product?	Positive, but they need to be activated
Would beneficiaries involve in product co-creation?	Yes, they could propose recommendations for enhancements
What barriers do you envisage in implementing the business (any kind of barriers)?	Activation of both producers and consumers
Who would have the interest to block this business and why?	Current retailers in the markets/importers of poor quality products
From what sources it will be ensured business sustainability?	Monetization of vouchers
What risks would be in place?	Low quantity of high quality products/capacity of small farmers to join the network/capacity to activate in short time a critical mass of buyers and sellers
How large is the market?	10% of an urban community
What complementary businesses would be run?	Sell traditional products from vegetables, fruits, meet, milk
What new businesses would emerge and how large?	Customized handmade clothes sold through the system/ other handmade products/E-tailoring (work)shop
How much sophistication?	Eco agro-products
What about profitability level?	10%
What new businesses would occur from the results of this business?	Personalized providers of high end agro products/smart agriculture
What steps should be followed?	Partnerships with logistic networks/partnerships with providers of smart refrigerating boxes
Which would be the first steps?	Intuitive portal
Who will be involved before starting the business?	PR/network facilitators
What ideas do you have to overpass barriers?	Dedicated business units for activation/network partnerships with entities having social mission/ mechanisms for optimal price policies
What leverage effects do you see?	Internationalization and scaling up
What new opportunities could be born?	E-commerce for fast retail of promotional offers for big brands

working close with communities of producers to learn them how to use the platform and support them

- Reach the version 1.0 of the ecosystem by setting up an lead group of consumers to upload requests and activating a key group of producers
- Perform surveys to identify optimal prices for different products and promote them among producers, using also various incentives for encouraging some price policies

A Net-Present-Value (NPV) calculation and real option scenarios are necessary for designing the whole business model before business launching. Such details are not included in this paper.

The second case study relates with the business domain of education. Go-to-gemba approach for this domain reveals that an important segment of young generation disagrees with the traditional models of higher education in terms of their capacity to prepare them for practice. The same approach reveals that many children from villages and small towns whose families have low income do not follow a higher education path because of cost of living in the expensive university cities. A consortium of software outsourcing companies has seen a business opportunity in this social problem, as long as these companies face with a crisis of human resources. Mapping their business portfolio with the set of nine inventive principles, and having in mind the social problems SP1 “lack of fast, practice-oriented and free training for a well-paid job” and SP2 “low accessibility to higher education of children from low income families living in rural areas and small towns”, the result from Table 3 occurs, where P1 means “high-end software outsourcing services”, P2 means “software testing and QA”, and P3 means “customer care call centers”.

AI1-P1:P3 suggests the opportunity for setting up a private IT Academy. AI3-P1:P3 suggests the idea of accreditation of the study program with public agencies responsible with labor force (e.g. certificate for analyst programmer). AI4-P1:P3 leads to the idea of fast integration in real projects during studies. AI5-P1:P3 suggests project oriented curricula with graduation in 1.5 years. AI6-P1:P3 indicates direct link between graduation and employment. AI7-P1:P3 indicates provision of free accommodation during studies in social houses. AI8-P1:P3 suggests location of the IT Academy in a cozy small town with cheap living conditions. AI9-P1:P3 indicates collaboration with local administration to provide a free space for study as

Table 3 Mapping of current product portfolio and areas of intervention

	P1	P2	P3
AI1	SP1	SP1	SP1
AI2	–	–	–
AI3	SP1	SP1	SP1
AI4	SP1	SP1	SP1
AI5	SP1	SP1	SP1
AI6	SP2	SP2	SP2
AI7	SP2	SP2	SP2
AI8	SP2	SP2	SP2
AI9	SP2	SP2	SP2

a condition to bring the IT Academy in the town and then to open a local business unit.

From the set of ten disrupting vectors, the vector of “asymmetric construction” was found very useful in this case study. It led to the consolidation of the business vision that looks like: “A private IT Academy located in a small town with economic difficulties, with cheap living conditions, but positioned in a nice geographical area, which is primarily targeted to young intelligent people from low income families eager to follow a tertiary education with direct employment in the IT companies that are behind this IT Academy, companies that agree to set up the related operational units in that town and/or several small towns, but with expert management coming from the central unit (headquarter), with rotation of the management staff”. Return-on-Investment (ROI) is generated by returning the loan for studies once students engage in projects and afterwards, when they become employees. Other details on this case study are not provided in this paper.

5 Discussions

Successful businesses require, besides good products and/or services, viable business models. Thus, any business idea necessitates a deeper analysis from a financial point of view over its life-cycle in the context of a given business model. Even if the market potential exists, this does not guarantee the commercial success without the presence of an effective business model. For example, in the first case study, cost-effective solutions for market activation are crucial for commercial success. In the second case study, wide promotion campaigns in schools through face-to-face meetings of potential candidates and their parents are necessary.

Both case studies illustrated in this paper have financial sustainability. Numerical data are not provided here due to the fact both businesses are operational now and some information is subject to confidentiality agreement. This is also the reason not all details of the business models are revealed in the paper.

6 Conclusions

The main theoretical contribution of this paper is a methodology for systematic design of CSV-driven businesses. The thesis at the foundation of this methodology is that profitable businesses can be generated from social problems in any application domain if adequate products and related business models are in place. In this respect, go-to-gemba approach is essential for identifying social problems. Mapping proper inventive principles over the identified social problems in relation with the current business of a company significantly helps ideation of a CSV-driven business. The set of disrupting vectors is useful for clarifying the vision of the new business, whereas

the subsequent set of questions are important for defining a viable business model in relation with the new business.

Two examples are provided in the paper for demonstrating the practical potential of the methodology. However, the methodology does not cover other essential pieces in relation with a new business, such as the entrepreneurial plan, the business plan and the financial plan. These pieces are necessary to properly understand how to approach the new business in a profitable and financially sustainable way.

Future researches will be focused on defining more systematic links between this methodology and the business model canvas.

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