

A BUSINESS MODEL FRAME FOR INNOVATIVE STARTUPS

Dante Jorge Dorantes-Gonzalez
MEF University, Turkey

ABSTRACT

Current business model frames such as the Business Model Canvas and the Lean Canvas do not address aspects of open innovation, problem statement, innovative problem solving, business metrics and disruptive strategies; therefore, a novel business model frame is introduced to cover these aspects. This new model is based on a combination of key principles of the theory of inventive problem solving applied to business and management, such as multi-screen analysis of value-conflict mapping, trends of ideality of business system evolution positioning, among others; but also, intellectual property, disruptive strategies, and open innovation, as well as startup metrics to describe the business differentiation and attractiveness to potential investors, incubators and accelerators. The entrepreneur designing his/her own startup should be able to justify if not all, most of the items to be able to demonstrate the idea strengths. And regarding both building blocks “Product Formulation and Inventive Problem Solving” and “Disruption Strategy”, certain training should be necessary.

Keywords: Business model, innovation, TRIZ, intellectual property

INTRODUCTION

A business model usually consists of three steps, such as, thinking about the opportunity to satisfy a real customer who needs a job to be done; sketch how the company will fulfill the need at a profit; and compare that model to an existing model to see how much it should be changed to capture the opportunity (Johnson, 2008). On the other hand, a business model consists of a four-block frame that creates value of any business: Customer value proposition, profit formula, key resources, and key processes: Customer value proposition (CVP), profit formula, key resources, key processes.

In order to effectively map out business models, Osterwalder (2004) created the Business Model Canvas. Afterwards, Maurya (2010, 2012) generated the Lean Canvas. These schemes are the most important models that sketch the main business model concepts. Both focus on problems, top priorities, solutions, key metrics (key activities) and competitive advantages, as well as capture the information of a traditional business plan in a single page.

The Business Model Canvas is a single page model that includes items such as: Key partners, key activities, key resources, value propositions, customer relations, channels, customer segments, cost structure and revenue streams (Fig. 1).

Figure 1: The Business Model Canvas Frame

Key Partners	Key Activities	Value Propositions	Customer Relations	Customer Segments
	Key Resources		Channels	
Cost Structure			Revenue Streams	

Unlike the Business Model Canvas, the Lean Canvas includes: The “Unfair Advantage”, which is a quality that can’t be easily copied or bought; “Key Metrics” refers to the key activities; the rest of the items are similar to the ones of the Business Model Canvas (Fig. 2). The left half of the frame relates to the product, and the right half to the market.

Figure 2: The Lean Canvas Frame

Problem	Solution	Unique Value Propositions	Unfair Advantage	Customer Segments
	Key Metrics		Distribution Channels	
Cost Structure			Revenue streams	

The advantages of both schemes are that after their completion, the riskiest parts of the business can be quickly identified, so that one can collect data about those areas to test most fundamental aspects of the model, so to be able to return to the model and update it over and over based on new findings, and finally, help coming up with the key things that matter most (Merrill, 2015). Both models are addressed to general startups, but they have left behind from the point of view of including a more systematic approach for the evaluation of innovative startups.

ENHANCING THE BUSINESS MODEL WITH INNOVATION

Being critical to the Business Model Canvas and the Lean Canvas, both models do not refer to important aspects of startups that usually matter to investors, incubators and accelerators (Dorantes-Gonzalez, 2015) such as: (1) Open innovation approaches; (2) Disruption strategy; (3) Startup financial, user, marketing, sales and market metrics.

In the present paper, besides reaffirming the previous three items in a frame based on the Business Model Canvas, a further development of the statement of the unique value proposition is made; moreover, the application of the Theory of Inventive Problem Solving (TIPS, or from its Russian transliteration: Теория Решения Изобретательских Задач, TRIZ) to the business model frame is proposed.

Open Innovation Approaches

The benefits of open innovation have been well known even before coining the term Open Innovation was coined in 2003 (Steiner, 2014): DuPont’s TechnologyBank™ eased spreading its own technology licenses to become industry standards; IBM’s Ventures in Collaboration program helped entrepreneurs to adopt its patented technology, as well as supplied its software in open source license with the interest of linking the enterprises to IBM technologies; Intel has relayed on the extensive use of external knowledge with universities, labs, and venture capital; Procter & Gamble opened internal research to outside participants to improve internal collaboration and to detect and adapt patented technologies from external actors, doubling its rate of innovation success and decreasing costs.

Open innovation is “the use of purposive inflows and outflows of knowledge to accelerate internal innovation and to expand the markets for external use of innovation, respectively” (Chesbrough, 2006). Open innovation is usually contrasted with closed innovation, supposedly its predecessor, where companies generate their own innovation ideas, and then develop, build, market, distribute, service, finance, and support them on their own (Chesbrough, 2003). However, Chesbrough enabled both academics and practitioners to rethink the design of innovation strategies in a networked world, coinciding with the current interest for outsourcing, core competences, collaboration, and the internet. He also connected the processes of acquiring external knowledge and exploiting internal knowledge externally by placing them both under the open innovation umbrella.

Based on the openness of both the process and the outcome of innovation, open and closed innovation is categorized by Huizingh (2011) as: (1) Private open innovation (Huston, 2006); (2) In-house closed innovation (Chesbrough, 2003); Open source innovation (von Hippel, 2010); (4) Public innovation (von Hippel, 2006).

Disruption Strategy

Disruption strategies usually involve new ways to improve customer satisfaction; finding opportunities by understanding change trends; developing abilities to move quickly and surprise by being the disrupter, not the disruptee; changing the rules of the game; investing in strategic market communication, and attacking with several competitive weapons simultaneously (D'Aveni, 1999); watching and anticipating competitors' plans and think five moves ahead; and keeping a finger on the pulse of your customers as early-warning, allowing to react to market changes (Myler, 2013). More accurate disruption approaches that often require business model change into an unknown market and business model territories, were listed by Johnson (2008):

1. Democratize products in emerging markets at the Bottom of the Pyramid. Address through disruptive innovation the needs of large potential customer groups who are shut out of a market entirely because existing solutions are too expensive or complicated for them.
2. Threat low-end core markets, such as the Indian cheap car Nano, threatening other automobile makers.
3. Deploy a new business model around a brand-new technology or bring a tested technology to a whole new market.
4. Fulfill an entirely unmet customer service where that does not yet exist, especially in markets where existing products tend to increase commoditization over time, by integrating its key processes and resources in a vastly more efficient way.
5. Turn commoditized products into services, i.e. rather than selling products at lower and lower prices, sell a “just-the-product-you-need-when-you-need-it, no-repair-or-storage-hassles” service.

It is also worth to mention to this context the “12 Dimensions of Business Innovation” or also called, the “Innovation Radar”, which can be used to look for opportunities to innovate. This innovation radar consists of four key dimensions: The offering, the customers, the processes and the points of presence the company uses to take its offering to market (Sawhney, 2006). Within these four core dimensions there are 8 more described as follows: (1) Offerings (innovative new products or services); (2) Platform (common components or building blocks to create derivative offerings); (3) Customized end-to-end solutions; (4) Unmet customer needs or underserved customer segments; (5) Customer experience interaction across all touch points and moments of contact; (6) Value capture, redesigning how company gets paid or create innovative new revenue streams; (7) Core operating processes to improve efficiency and effectiveness; (8) Change the form, function or activity scope of the firm; (9) Supply chain sourcing and fulfillment; (10) Create new distribution channels or innovative points of presence, including places where offerings can be bought or used by customers; (11) Create network-centric intelligent and integrated offerings; (12) Leverage a brand into new domains.

Startup Metrics

When raising capital from investors, it is significant to demonstrate a quick and clear executive evaluation of the startup's performance for the venture capitalists or stakeholders, since they just accept or reject the proposal without a clear understanding of the factors that influenced the decision. Metrics are very informative about the various dimensions of a startup's performance. Even though metrics are not usually sufficient to guarantee an outcome, they are necessary to successfully fundraise. At the end of the day, investors want to know why it is safer to invest in a product.

A venture capital investor guide of the most important metrics analyzed when judging an early-stage startup is divided in five groups: financial, user, acquisition, sales, and marketing (Crichton, 2014):

1. Financial Metrics: Monthly Revenue Growth, Revenue Run Rate, Gross/Net Margins, Burn Rate and Runaway.
2. User Metrics: Daily Active Users / Monthly Active Users, K-value (Virality), Proportion of Mobile Traffic, Cohort Analysis and Churn.
3. User Acquisition and Marketing Metrics: Cost of Acquiring a Customer and Payback (paid and free channels), Net Promoter Score.

4. Sales Metrics: Magic Number, Basket Size (Average Sales Price) and Order Velocity, Average Sales Cycle, Long Term Value.
5. Market Metrics: Total Addressable Market, Average Wallet Size.

Further Improvement of the Unique Value Proposition

The unique value proposition is a differentiating factor that would compel a prospect to choose a specific company over a competitor. This item is central, and it is insufficiently stated. Some tips for identifying a unique value proposition and stand out in a competitive market are pointed out by Lord (2014), Sinek (2014) and Murphy (2013):

1. Critical focus and features. Why it's so critical for the prospects, and how focused the company is on this.
2. Partnerships and platform integrations. Show off how convenient and powerful a platform is when integrated with other products of value to prospects.
3. Customer service. If competitors are standing on low prices as their unique value proposition, invest in a customer-service team, which can be a great way to stand out.
4. Design, user interface and user experience. Make the experience of discovery, comparison, decision, easy use and understanding, and ongoing user experience stunning. People are willing to pay for quality and a beautiful design.
5. Focus on the "why" of the Golden Circle Theory. The best companies focus on "why" they do what they do, getting at the heart of introducing prospects to the core values and motivations for building this product and sharing it with the world. Innovative enterprises think and act by communicating from inside out, by explaining what their beliefs, purpose, inspiration and cause are; hence inspiring, building trust, loyalty, so justifying why we should care (Sinek, 2014). For Sinek, "Why" means "what is your purpose and believe? Why does your organization exist? Why should everybody care? Why is what we trust, are loyal to, our cause, purpose and believe in challenging the status quo (Murphy, 2013).
6. Spin your price in your favor. If you cost more, then it costs more because it comes with account management, development cost, scales better, more reliable, or better customer service? Whatever the reason, put it front and center and explain that price delta.

Applying the Theory of Inventive Problem Solving's Tools to the Business Model Definition

It is well known for disruptors and innovators that evaluating technologies in a completely unrelated industry may bring chances to revolutionize our industry in the future. This is what TRIZ is meant. The Theory of Inventive Problem Solving (TIPS or, from Russian, TRIZ-Teoriya Resheniya Izobretatelskikh Zadach) is becoming one of the leading practices at large and small industrial companies in the world to support innovation and intellectual property by solving inventive problems and generate breakthrough ideas. In its origins, TRIZ was created for technical systems (Altshuller, 1988), however, it has been successfully applied in arts (Murashkovsky, 2007), advertisement (Vikentiev, 2007), social problems (Altshuller, 1994), business and management (Souchkov, 1998; Mann, 1999). Even though TRIZ has been used specifically for business model innovation (Ishida, 2003; Gomila, 2009), both papers dealt with a vague definition of a business model. Lou (2009) used the separation principles to solve physical contradictions for business model innovation of enterprises. However, only Souchkov (2010) proposed a more structured approach based on business modelling:

- Ideality/Value formula in Business Models.

$$\text{Degree of Ideality} = \frac{\text{Value Creators of the Value Proposition} - \text{Value Reducers}}{\text{Harmful Functions} + \text{Costs}}$$
- Contradictions and Value-Conflict Mapping (business vs market / technology requirements). These are contradictions between growing market and customer demands that impose limits on value propositions. Separation principles to solve physical contradictions are: separation in space, separation in time, phase transformation (separation on condition), system transformation (separation of parts from the whole). TRIZ provides a number of tools to help overcoming identified contradictions and the psychological inertia by using the available resources and separation principles. Some developments using these tools are:

- Root Conflict Analysis, RCA, (Souchkov, 2007)
- TRIZ-based Function Analysis (Mann, 2004; Souchkov, 2009)
- Multi-Screen or the 9-window Analysis to get a "big picture" of key driving contradictions across several system levels (Souchkov, 2009)
- Special version of the Contradiction Matrix and 40 Inventive Principles developed for business and management applications (Mann, 2004)
- 7 generic principles of conflicts elimination (Souchkov, 2009)
- The adapted version of Inventive Standards and the Trends of Business Systems Evolution can be used for more complex cases (Souchkov, 2009)
- Trends of Business Systems Evolution. Some trends of business evolution can be applied to building block of a business model, such as the Trend of Increasing the Degree of Dynamics, while some other trends address more specific building blocks, such as the trend of Customer Purchase Focus Evolution, addressing the Value Proposition and Revenue Streams (Mann, 2004; Souchkov, 2009). The Trend of Increasing Customer Expectations comprises: commodity, product, service experience, user experience, and individuals-targeted custom products.
- Building Block Patterns. Each building block has its own content, depending on the type of business, product, service etc. At the same time, each building block can include generic patterns which can be reused across different business domains. For instance, in (Osterwalder, 2010) the following patterns are identified for the "customer relationship" building block: Personal assistance, dedicated personal assistance, self-service, automated service, communities, co-creation.

As a contribution to the application of TRIZ in Business Model, the author also recommends to use the following TRIZ tools: (1) Ideal Final Result; (2) Dynamization and Adaptability Increase; (3) Trend of Functionality Increase. In the following section, these key aspects will be integrated in the design of a new business model frame.

DESIGN OF A NEW BUSINESS MODEL FRAME

On the basis of the business model canvas, aforementioned topics can be integrated into it. The new proposals are highlighted in red color in Fig. 3. This frame represents an further improvement to the frame presented in (Dorantes-Gonzalez, 2015).

Figure 3: The Proposed Business Model Frame

Key Partners, Open Innovation & IP	Problem/Product Formulation & Inventive Problem Solving	Value Propositions* & The why of the Golden Circle	User Experience & Customer Relations*	Customer Segments*
	Key Activities (strengths)	Disruption Strategy	Distribution Channels*	
	Key Resources & IP Policy			
Cost Structure			Revenue streams*	

* means that key Startup Metrics may be included. The shaded section means the introduction of a brand new item to the model.

Fig. 4. shows a detailed guide to answer each of the sections of the new business model frame. There are two new building blocks created within this frame related to “Product formulation and inventive problem solving” and “Disruption Strategy”, which is shaded in red color. Regarding the building blocks “Product Formulation and Inventive Problem Solving” and “Product formulation and inventive problem solving”, certain training should be necessary to fill in these blanks. In a further research, the applications of the present business model frame for innovative startups will be shown in detail.

Figure 4: The Proposed Business Model Frame

<p>Key Partners</p> <p>Crowdsource</p> <p>Intellectual Property (IP) Policy</p> <p>Type of Open Innovation</p>	<p>Product formulation and inventive problem solving:</p> <p>Situation Analysis (needs, demands, expectations of business owners/executives); Problem/opportunity/constraint formulation; Ideality/Value formula; Function Value Analysis; Multi-Screen or the 9 windows; Analysis of Value-Conflict Mapping; Contradiction Matrix and 40 Inventive Principles for business & managt.; 7 generic principles of conflict elimination; Inventive Standards and Trends of ideality of business system evolution; Trend of Functionality Increase; Ideal Final Result; Dynamization and Adaptability Increase</p>	<p>Value Propositions</p> <p>Critical focus and features</p> <p>Partnerships and platform integrations</p> <p>Customer service</p> <p>Design, user interface and user experience</p> <p>Focus on the “why” of the Golden Circle Theory</p> <p>Spin the price in our favor</p>	<p>Customer Relations</p> <p>User Experience Feedback</p> <p>User Metrics: Daily Active Users / Monthly Active Users, K-value (virality), Proportion of Mobile Traffic, Cohort Analysis and Churn</p>	<p>Customer Segments</p> <p>Market Metrics: Total Addressable Market, Average Wallet Size</p>
	<p>Key Activities</p>	<p>Disruption strategy:</p> <p>Democratize products in at the Bottom of the Pyramid</p> <p>New business model around a new technology or tested technology on a new market</p> <p>Fulfilling an unmet customer service where that does not yet exist</p> <p>Fend off low-end disrupters</p> <p>Leading core market segments to commoditize (turning products into a service)</p>	<p>Distribution Channels</p> <p>Sales & Marketing Strategies</p> <p>Sales Metrics: Magic Number, Basket Size (Average Sales Price) and Order Velocity, Average Sales Cycle, Long Term Value</p> <p>User Acquisition and Marketing Metrics: Cost of Acquiring a Customer and Payback (paid and free channels), Net Promoter Score</p>	
	<p>Key Resources</p> <p>IP policies for own patents</p>			
<p>Cost Structure</p>		<p>Revenue Streams; Profit Formula; IP Policy benefits; Financial Metrics: Monthly Revenue Growth, Revenue Run Rate, Gross/Net Margins, Burn Rate and Runaway</p>		

Conclusion

Current business model frames such as the Business Model Canvas and the Lean Canvas do not address aspects of open innovation, problem definition, innovative problem solving, business metrics and disruptive strategies; therefore, a novel business model frame is introduced to cover these aspects. This new frame is addressed to startup entrepreneurs, incubators, accelerators and investors interested in supporting these new companies. Besides Open Innovation Approaches, Disruption Strategy, Startup Metrics, the new business model frame adds a refinement of

the statement of the unique value proposition, and introduces tools of the Theory of Inventive Problem Solving. The entrepreneur designing his/her own startup should be able to justify if not all, most of the items to be able to demonstrate the idea strengths. And regarding both building blocks “Product Formulation and Inventive Problem Solving” and “Product formulation and inventive problem solving”, certain training should be necessary to fill in these blanks. But the learning is worthwhile.

References

- Altshuller, G. 1988, "Creativity as an Exact Science", Gordon & Breach, New York.
- Altshuller, G., Vertkin, I. 1994, "How to Become a Genius: Life strategy of creative personality", Minsk, Belarus (In Russian)
- Chesbrough, H.W. 2003, “Open Innovation: The New Imperative for Creating and Profiting from Technology”, Harvard Business School Press, Boston.
- Chesbrough, H.W., Vanhaverbeke, W., West, J. (Eds.), 2006. Oxford University Press, London.
- Crichton, D. 2014, “The Complete Quantitative Guide To Judging Your Startup”, techcrunch.com, Jan 31, 2014, <http://techcrunch.com/2014/01/31/the-complete-quantitative-guide-to-judging-your-startup/>
- D'Aveni, R.A. (1999) Strategic Supremacy through Disruption and Dominance, Sloan Management Review; Cambridge, Mass.40.3 (Spring 1999): p. 127
- Dorantes-Gonzalez, D.J., Küçükaydın, H., Özlem, Ş., Bulgan, G., Aydın, U., Son Turan, S., Karamollaoğlu, N., Teixeira, F.F. 2015, “Improved Business Model Representation of Innovation Concepts”, Proceedings of the 2015 World Conference on Technology, Innovation and Entrepreneurship, Istanbul, Turkey, May 28-30.
- Gomila, J. 2009, "Prospecting New Business Models with TRIZ", in Proceedings of TRIZCON-2009, March 16- 18, California, USA.
- Huizingh, E.K.R.E. 2011, “Open innovation: State of the art and future perspectives”, Technovation 31 (1), pp. 2–9.
- Huston, L., Sakkab, N. 2006, “Connect and develop: inside Procter & Gamble's new model for innovation” Harvard Business Review 84, pp. 58–66.
- Ishida, A. 2003, "UsingTRIZtoCreateInnovativeBusiness Models and Products", in Proceedings of ETRIA TRIZ Future 2003, November 12-14, 2003, Aachen, Germany.
- Johnson, M.W., Christensen, C.M., Kagermann, H. 2008, “Reinventing Your Business Model”, Harvard Business Review, December 2008. <https://hbr.org/2008/12/reinventing-your-business-model/ar/1x>
- Lou Yonghai, Li Jianhua, Business Model Innovation of Enterprises by Physical Contradiction Means of TRIZ, International Conference on Electronic Commerce and Business Intelligence, ECBI 2009, 6-7 June 2009, IEEE Xplore, pp. 529-532, 2009.
- Lord, J. 2014, “Want to Stand Out From the Crowd? Know Your Unique Value Proposition”, Entrepreneur, April 09, 2014. <http://www.entrepreneur.com/article/232893>
- Mann, D., Domb, E. 1999, "40 Inventive (Management) Principles With Examples," The TRIZ Journal, September, www.triz-journal.com
- Mann D. 2004, "Hands-on Systematic Innovation for Business and Management", Lazarus Press.
- Maurya, A. 2010, “Practice Trumps Theory, How to Document Your Business Model On 1 Page”, August 11, 2010. <http://practicetrumpstheory.com/businessmodelcanvas/>
- Maurya, A. 2012, “Practice Trumps Theory, Why Lean Canvas vs Business Model Canvas?” February 27, 2012. <http://practicetrumpstheory.com/why-lean-canvas/>
- Merrill, C. 2015, “Business Plans. Skip the Boring Business Plan. Focus on This Strategy Instead”, Entrepreneur, February 06, 2015. http://www.entrepreneur.com/article/242452?utm_source=pocket&utm_medium=email&utm_campaign=pockethits
- Murashkovsky, Y. 2007, "Biography of Arts", Scandinavia, Petrozavodsk (In Russian)
- Murphy, J. 2013, “Why Do You Do What You Do?” 09/06/2013. http://www.huffingtonpost.com/john-murphy/why-do-you-do-what-you-do_b_3873650.html

- Myler, L. (2013) 4 Ways To Create A Disruptive Business Strategy, Forbes Entrepreneurs Retrieved on September 4, 2013 <https://www.forbes.com/sites/larrymyler/2013/09/04/4-ways-to-create-a-disruptive-business-strategy/#794f0c13546f>
- Osterwalder, A., 2004. The Business Model Ontology: A Proposition in the Design Science Approach, unpublished dissertation, University of Lausanne.
- Osterwalder, A., Pigneur, Y. 2010, "Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers", Wiley.
- Sawhney, M, Wolcott R.C., Arroniz, I., (2006) The 12 Dimensions of Business Innovation, MIT Sloan Management Review, p. 78
- Sinek, S. 2014, "How great leaders inspire action", TED 2014, http://www.ted.com/talks/simon_sinek_how_great_leaders_inspire_action#t-198730
- Souchkov, V. 1998, "M-TRIZ: Application of TRIZ to Solve a Business Problem," white paper, Insytec.
- Souchkov, V, Hoeboer, R., van Zutphen, M. 2007, "Application of Root-Conflict Analysis (RCA+) to Solve Business Problems", The TRIZ Journal, February 2007, www.triz-journal.com
- Souchkov, V. 2009, "A Guide to TRIZ and xTRIZ Techniques and References: A Course Book for Business and Management". ICG T&C.
- Souchkov, V. 2010, "TRIZ and Systematic Business Model Innovation", Global ETRIA Conference 'TRIZ Future 2010', Bergamo, Italy, November 3-5.
- Steiner, A. 2014, "Élaboration et Mise En Oeuvre D'un Modèle Organisationnel Favorisant L'open Innovation: Contribution à L'innovation Collaborative", Thesis, Université de Lorraine
- Vikentiev, I. 2007, "Principles of Advertisement and Public Relations", TRIZ-Chance and Business Press, St. Petersburg (In Russian)
- von Hippel, E., von Krogh, G. 2006, "Free revealing and the private collective model for innovation incentives", R&D Management 36 (3), pp. 295–306.
- von Hippel, E. 2010, "Comment on "Is open innovation a field of study or a communication barrier to theory development?" Technovation 30, 555.