

Crowdsourcing as a Key Method for Start – ups Overcoming Valley of Death

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Abstract

During the recent decade start-ups as a research topic is being analysed very actively, but still there is a lack of knowledge how to overcome „the valley of death” for start-ups. Crowdsourcing can be a way out for start – ups and work as innovative business model: it helps to compete successfully in a market (Zott, Amit &Massa, 2011), to decrease expenditures, to gain huge source of knowledge and ideas, to get cheap and fast feedback from clients. Thus, the purpose of this research is defined as the issue: what factors of crowdsourcing do influence crowd decision to take part in a start-ups performance? A scientific literature analysis as a research method allowed to reveal the key features of a crowdsourcing that make a significant impact on a crowd decision to participate in start-ups performance. The research results show that motivation, task and IT are the most important factors, influencing the successful usage of crowdsourcing in start-ups performance.

Keywords: crowdsourcing, start-ups, motivation, task, IT, valley of death

1. Introduction

It is considered that start-ups increase the country's competitiveness, economic growth and contribute to the creation of new jobs (OECD, 2012). However, 80 percent of first year operating start-ups encounter many internal and external factors limiting their development or even determining their failure due different obstacles: in their first year of existence start-ups lacks entrepreneurial skills, fund raising knowledge, and later („valley of death” - up to 5 years) - leadership skills, human resource development, production costs, quality assurance, product support, and others. In this case start-ups could use crowdsourcing as a business model as well as an instrument for competence and fund compensation.

Thus, the paper aims to reveal what factors of crowdsourcing do influence crowd decision to take part in a start-ups performance?

The paper presents the concept of start - ups, problems of start-ups during the first five years of performance and crowdsourcing as one of possible solutions. The key factors of crowdsourcing are identified and the conceptual model is constructed. The paper ends with discussion and conclusions.

2. Crowdsourcing for Start – ups Performance

2.1 Start - ups and the Valley of Death: challenges and opportunities

Start-ups phenomena is widely analysed in social science theory. Start-ups are the term that refers to newly established ventures when the phase of establishment is finished and the product' initiating phase have been started already. It is analysed in different perspectives in particularly some attempts have been made to explore the main success factors for start-ups including the strategic, human resource and funding dimensions.

Knowledge about the success and failure factors in the kicking of the business enables to predict the success rate and more important the pitfalls in the near future. The most often cited gap that young entrepreneurs face in the initial phase is associated to financial restrictions or so called financial gap" or "capital gap". Such a situation in the scientific discourse is named the valley of death, more precisely Murphy & Edwards (2003) called it "Cash Flow Valley of Death". Although it sounds horrible ("Valley of Death"), one can find the positive angle/perspective in this phenomena, for instance natural selection, where only the viable ideas survive. But on the other hand the proper assistance (financial, technological and managerial) can help to overcome the "Valley of Death".

On the other hand, financing restriction is not the only problem that the start-ups are facing in the beginning of business. It is more the outcome what is determined by a complex of internal and external factors. For instance, the exploratory research by Gelderen, Thurik & Bosma (2005) explore the success and risk factors in terms of four approaches: *individual, environment, process and organization*. Schutjens & Wever (2000) provide three important factors for companies' growth, including presence of business partner, preparation, and previous work experience. Meanwhile, Boyer & Blazy (2014) contend that „(...) the survival of innovative and non-innovative enterprises is linked to personal criteria such as age, gender, belonging to a minority, professional experience and financing sources" (Boyer & Blazy, 2014).

The lack of experience in management, and technological knowledge also can cause a deeper descent in the "Valley of Death". Considering the financing demand Murphy and Edwards (2003) distinct the three broad stages that requires investment: a) the technology creation stage; b) sufficient cash flow; and c) early commercialization stage. The second demand requires the biggest part of investments (Murphy & Edwards, 2003). Murphy & Edwards (2003) argue that for the first stage development the public funds are necessary, because equity investors merely invest in this stage. The second stage is more complicated due to the in efficiency of bootstrapping techniques at this stage (when huge amount of cash flow is needed, and debt instruments are not achievable due to lack of collateral for financing institution. And moreover the equity investors like venture capital are more interested in the third stage investment due to less risk, and obvious opportunities related to market issues (predicted sales, market share and etc.) (Murphy & Edwards, 2003).

The inherent information asymmetry problem and moral hazard are identified when financing start-ups in the early stage of development (Nofsinger & Wang, 2009) and thus the venture capital financing issue is very popular among the researchers (Cochrane, 2005; Brander, Egan & Hellmann, 2008; Nofsinger & Wang, 2009).

Venture capital investors usually are associated with the provision of mentoring or monitoring to the firm, they often are representatives in the board of directors, or have the right to appoint or fire managers (Cochrane, 2005). Thus provision of value added by venture capital investors is a distinctive feature of venture capital financing. For instance Brander, Egan and Hellmann (2008) state that venture capitalists provide "value-added" to their portfolio companies in terms of providing financial, marketing, human resource and operational management support firms (Brander, Egan & Hellmann, 2008).

The research so far has revealed that the venture capital investors are concurrent with the processes in the company. For instance there are empirical evidences of the venture capital investments relation to the human resource management in a company (Hellman & Puri, 2002; de Carvalho, Calomiris & de Matos, 2008), innovation (Peneder, 2010; Caselli, Gatti, & Perrini, 2009), internationalization (Fernhaber & McDougall-Covin, 2009) and others.

Ability to evaluate the potential in the company, to attract the proper financial instruments, to fill the gap in the market may lift up the start-ups to the breakeven point and to trigger for future development and gain the competitive advantage over the rivals.

2.2 Crowdsourcing concept

As it was already mentioned above, start ups during the first five years of performance have limited resource of competence. From budding start-ups to mature businesses, analytics companies use various communication strategies to help scale, increase profit and create value for their consumers. Breuer (2013) proposes that learning, experimentation and communication with costumers is the way to transform start-ups to sustainable business. Chesbrough and Appleyard (2007) also suggest that the opening up of companies to web communities constitutes a new challenge for strategy: "We believe that the concept of open source development and similarly inspired ideas such as open innovation, the intellectual commons, peer production, and earlier notions of collective invention represent phenomena that require a rethinking of strategy" (citing Chanal, V., Caron-Fasan, M.L., 2007).

Crowdsourcing can propose for start – ups the access to funding, knowledge, subject matter experts and resources on a global scale (Smith, Manesh & Alshaikh, 2013). It can reduce costs, enlarge innovation possibilities and improve performance efficiency (Zogaj, Bretschneider & Leimeister, 2014). So, crowdsourcing business process has

become a strategy that works in different ventures (Chayka & Waslen, 2012).

Although crowdsourcing concept first was applied in 2006 (Smith, Manesh & Alshaikh, 2013 citing Howe, 2006), still there are plenty of space for research directions (Estellés-Arolas & González-Ladrón-de-Guevara, 2012): starting from concept of crowd, taxonomy and categorization to attraction and involvement, motivation and management, information transfer of crowd etc. Especially this topic is important for start - ups, lacking as knowledge as material resources as well.

Scientific literature presents series of crowdsourcing definitions focusing on object (Vukovic et al, 2009; Heer & Bostok, 2010; Alonso & Lease, 2011), subject (Kleeman et al., 2008; Li, 2012; Schenk & Guittard, 2011; Estellés-Arolas&González-Ladrón-de-Guevara, 2012), process (Brabham, 2008; Kleeman, Voss & Rieder, 2008; Howe, 2008; Ling, 2010) and IT based resources (DiPalantino & Vojnovic, 2009; Howe, 2011; Kazai, 2011).

Our applied definition of crowdsourcing is as following: „Crowdsourcing is a type of participative online activity in which an individual, an institution, a non-profit organization, or company proposes to a group of individuals of varying knowledge, heterogeneity, and number, via a flexible open call, the voluntary undertaking of a task. The undertaking of the task, of variable complexity and modularity, and in which the crowd should participate bringing their work, money, knowledge and/or experience, always entails mutual benefit. The user will receive the satisfaction of a given type of need, be it economic, social recognition, self-esteem, or the development of individual skills, while the crowdsourcer will obtain and utilize to their advantage that what the user has brought to the venture, whose form will depend on the type of activity undertaken” (Estellés-Arolas & González-Ladrón-de-Guevara, 2012).

Analysing crowdsourcing typology from the object perspective, three types of crowd are detected: 1) task based public crowd; 2) information exchange public crowd; 3) an employee based public crowd (Smith, Manesh, Alshaikh, 2013). The first two types of crowd make significant impact on start – ups performance due their cost reduction, knowledge enlargement and experience expansion aspects. Task based public crowd can replace significant number and competence of employees, for example, for marketing, finance, human resource, production questions. Information exchange public crowd can help to enter a market and provide a feedback about it products and services, enlarge experience in a particular field. Only an employee based public crowd is not so suitable for start – ups due requirement to employ crowd. Thus, it can be concluded that crowdsourcing is can be a method for lean start – ups development and learning.

2.3 Key factors enabling crowdsourcing for start-ups

In order to reveal the key dimensions enabling crowdsourcing for start – ups, structural approach is being applied. Scientists analyze crowdsourcing concept from motivation, identity, vision and strategy, trust, task, creativity, communication, infostructure perspectives. Following paragraphs will present all these factors and their influence to crowd decision to participate in start – ups processes.

Society treats innovations as good and valuable intentions. So, society or individuals chosen to participate in the activities of the organization through crowdsourcing firstly check the identity and image of an organization. And here the challenges rise for start - ups – usually they do not posses any visible identity or at least it is well known for a society. So image and visible identity as common factors influencing crowd decision to take part in crowdsourcing do not make a great impact for start – ups crowdsourcing processes. Thus, only strong vision, strategy compatibility with crowd and communication ensures crowd decision to participate in this process. So, willing to have motivated and participating crowd, vision should define clear purpose, tasks and perspectives (Chesbrough, 2013; Bott, Young 2012). Proper vision determines trust, cooperation and support level. Sharma (2010) define the importance of linkages and trust - trust as a factor in this model is a very important aspect, because it is only in communication and confidence, you can work in teams, communicate effectively. States clearly that the information is part of the organization high chances to apply crowdsourcing model. Many organizations like the "gamble" with this part, because relationships and trust can reduce some costs. Ties necessary for both the public and organizations. Crowd should feel the need for its participation and understand why it should decide to take part in crowdsourcing. It is emphasized that communication with the public may be providing promotional materials, organizations in organizing events, providing information on the Internet, in the media. Communication with certain groups in society must be adapted to the feedback of their shape and channels in order to satisfy interests. According to Bott, Young (2012), another very important aspect that the crowd would be portrayed as a partner of the organization. However, throughout the organization's communications should be maintained her characteristic and recognizable piece of communication style based on identity.

Therefore, organizations before working with the public need to know how to motivate her to relieve crowdsourcing method. Society efforts and seeking ideas for implementation, but does not promise to be recognized can experience

absolute demotivation. However, the emphasis on the fact that organizations must rely on the public to pay, otherwise will not be able to cooperate.

Each person in the group can individually choose what it more or less stimulates. Bott, Young (2012) highlights the key motivating factors that affect the public's involvement in crowdsourcing activities (see Figure 1). Crowdsourcing activities, organizations need to motivate the public that it is not only the additional financial benefits and help one another, cooperation, self-development, creativity, freedom. Research studies show that intrinsic motives, such as enjoyment, altruism, socialization, or sense of belonging, are equally important (Lakhani & Wolf, 2005, citing Zogaj, Bretschneider, & Leimeister, 2014).

Figure 1. Motivational factors for crowdsourcing



Source: Bott, Young, 2012

This may be an opportunity to exercise their creative idea, supporting business, or find a new job. It is often noted that the motivation and especially in the context of society creates favorable conditions for the experience of each individual's creativity, which is one of the factors in the implementation of crowdsourcing. Smith, Manesh, Alshaikh (2013) state that prior research on task-based public crowds has examined immediate financial payment, skills improvement, enjoyment and fun, and community-related motivations; prior research on technical information based crowds has examined access to people for learning, and enjoyment and fun.

Build trust and ties make it easier to transfer information, exchange, process, enables innovative business model to become effective. Information infrastructure helps to ensure these processes. Hardcastle (2011) discusses that information technology improve the quality of information and enlarge information effect. Sharma (2010) states that crowdsourcing is based on information technology, so it should be accessible, simple and reliable for a crowd. So, Bott, Young (2012) highlights, that firstly, a simplicity and quality are the main features of an information infrastructure. Zainon & Salleh (2011) add that information infrastructure in order to be more flexible from technical perspective should be measured by modularity, compatibility and connectivity and from information system position – market, network and integrity.

Scientists of creativity theory state that task is the core factor influencing individual decision to become team member or join the project. Y generation employees look forward interesting and challenging tasks more than financial benefits. Hemlin et al., (2006) states, that different task characteristics (short/long-lasting, simple/complex, routine/new, modulated/integrated) enhance creativity. Of course, it stimulates motivation of a crowd to participate in a crowdsourcing. Various classifications of tasks can be found: accordingly to Smeets (2011), the tasks are classified in three groups (listed with increasing difficulty): simple tasks, moderate tasks, and sophisticated tasks; related to the same context, Schenk and Guittard (2011) classify crowdsourcing tasks into routine, complex and creative tasks. We define task with such as features as novelty (new, innovative, creative or old, routine, standart) and complexity (simple or sophisticated, certain or uncertain, clear or unclear).

Therefore, it can be summarized that crowd should be provided with a clear purpose and challenging task through simple and convenient infrastructure and motivated at the same time. Different motivational factors (financial and non financial) make a significant impact on a crowd decision to take part in start-ups processes.

3. Discussion

Having analysed various factors influencing crowd decision to participate in start – ups performance, the main dimensions were identified: task, motivation and IT.

Figure 2. The Conceptual model

Object	Criteria	Indicators	Features
Crowdsourcing	IT	Accessibility	Connectivity
			Responsiveness
		Simplicity	Compatibility
			Modularity
	Task	Novelty	Standartization
			Innovation
		Complexity	Simplicity
			Clearness
	Motivation	Extrinsic	Certainty
			Financial
		Intrinsic	Employment possibilities
			Communication
			Efficiency efforts
		Efforts length	
		Social impact	
		Facilitation	
		Membership	

Task is the big question *What?*, IT – *How?*, and motivation – *Why?*. If a task is not attracting, no motivation will help. If a task and motivation are proper but it is very difficult to communicate via IT, also crowdsourcing process will not be effective. And motivation. There is no doubt that very often it can be the most important factor for crowd despite of task or IT acceptability. Certainly, different type of a crowd are motivated by different motivators. Thus, based on a scientific literature analysis a conceptual model is constructed.

4. Conclusions

Crowdsourcing is a quite new concept and especially from start-ups perspective. There is no doubt that this phenomena could contribute as a innovative business model for start-ups to overcome „the valley of death”.

The article was aimed at the identification of the key dimensions influencing crowd decision to participate in start-ups crowdsourcing process. Theoretical analysis and synthesis has revealed most important factors and features. The further research of this conceptual model should be conducted, in order to identify and evaluate it interaction and influence on crowd’s decision making. Another interesting topic is how these three dimensions affect different type of crowd.

References

- Alonso O. and Lease M., Crowdsourcing 101: Putting the WSDM of Crowds to Work for You. In: *Proceedings of the fourth ACM international conference on Web search and data mining, WSDM '11* (ACM, New York, 2011) 1-2
- Boyer, T., & Blazy, R. (2014). Born to be alive? The survival of innovative and non-innovative French micro-start-ups. *Small Bus Econ* (2014) 42:669–683, DOI 10.1007/s11187-013-9522-8.
- Brabham D. C. (2008). Crowdsourcing as a Model for Problem solving. // *Convergence* Vol 14 No. 1: The Internation Journal of Research Into New Media Technologies. 2008. p. 76-77. http://www.clickadvisor.com/downloads/Brabham_Crowdsourcing_Problem_Solving.pdf.
- Brabham D. C. (2011). Crowdsourcing: a Model for Leveraging Online Communities, University of North Carolina. 2011. p. 2-5. http://dbrabham.files.wordpress.com/2011/03/brabham_handbook_crowdsourcing.pdf.
- Brander, J.A., Egan, E. J. & Hellmann, Th. F. (2008). Government sponsored versus private venture capital:Canadian evidence. Working Paper 14029. Retrieved from <http://www.nber.org/papers/w14029>
- Breuer H. (2013). Lean venturing: learning to create new business through exploration, elaboration, evaluation, experimentation, and evolution. *International Journal of Innovation Management* Vol. 17, No. 3. DOI:10.1142/S1363919613400136
- Caselli, S., Gatti, S., & Perrini, F. (2009). Are Venture Capitalists a Catalyst for Innovation ? *European Financial Management*, 15(1), 92-111.
- de Carvalho, A. G., Calomiris, Ch. W., & de Matos, J. A. (2008). Venture capital as human resource management. *Journal of Economics and Business*, Elsevier, vol. 60(3), pages 223-255. Retrieved from <http://www.nber.org/papers/w11350.pdf>
- Chanal, V., Caron-Fasan, M.L. (2010). The Difficulties involved in Developing Business Models open to Innovation Communities: the

- Case of a Crowdsourcing Platform. *M@n@gement*, 13(4), 318 - 341
- Chayka M., Waslen D. (2012). Startups and communication strategies: Swinging for the fences. *Journal of Professional Communication*, 2(2):11-14. pp11-14
- Chesbrough H. (2013). Managing open innovation in large firms: Survey report. Executive survey on open innovation [interaktyvus]. p. 6,9. Peržiūrėta 2013, lapkričio 4, adresu <http://openinnovation.berkeley.edu/managing-open-innovation-survey-report.pdf>.
- DiPalantino D. and Vojnovic M., Crowdsourcing and all-pay auctions. In: *Proceedings of the 10th ACM conference on Electronic commerce, EC '09* (2009) 119–128.
- Estellés-Arolas E., González-Ladrón-de-Guevara F. (2012). Towards an integrated crowdsourcing definition. *Journal of Information Science XX (X) pp. 1-14, DOI: 10.1177/0165551500000000*
- Fernhaber, S.A., & McDougall-Covin, P. P. (2009). Venture Capitalists as Catalysts to New Venture Internationalization: The Impact of Their Knowledge and Reputation Resources. *Entrepreneurship Theory and Practice*, 33(1), 277-295.
- Heer J., and Bostok M., Crowdsourcing graphical perception: using mechanical turk to assess visualization design. In: *Proceedings of the 28th international conference on Human factors in computing systems, CHI'10* (ACM, New York, 2010) 203-212.
- Hellmann, T., & Puri, M. (2002). Venture capital and the professionalization of start-up firms: Empirical evidence. *Journal of Finance*, 57(1), 169-197.
- Hemlin S., Allwood, C.A., Martin, B.A. (2006). 2004. Creative Knowledge Environments: The Influences on Creativity in Research and Innovation, Edward Elgar, Aldershot and Brookfield, Vermont
- Howe J., The rise of crowdsourcing, *Wired* 14(6) (2006)
- van Gelderen, M., Thurik, R., and Bosma, N. (2006). Success and Risk Factors in the Pre-Startup Phase. *Small Business Economics*, May 2006, Volume 26, Issue 4, pp 319-355
- John H. Cochrane, "The Risk and Return of Venture Capital," *Journal of Financial Economics*, 75(1):3-52, 2005.
- Kazai G., In Search of Quality in crowdsourcing for Search Engine Evaluation. In *Proceedings of the 33rd European conference on Advances in Information retrieval* (Springer-Verlag, Berlin/Heidelberg, 2011). [Lecture Notes in Computer Science 6611, 165-176]
- Kleeman F., Voss G.G and Rieder K., Un(der)paid Innovators: The Commercial Utilization of Consumer Work through crowdsourcing, *Science, Technology and Innovation Studies* 4(1) (2008) 5-26.
- Li G. (2012). Crowdsourcing: Challenges and opportunities, Tsinghua University. <http://hotdb.info/hotdb2012/slides/hotdb12-crowdsourcing.pdf>. p. 4.
- Ling P., An Empirical Study of Social Capital in Participation in Online crowdsourcing, *Computer* 7(9) (2010) 1-4.
- Mo K. ir kt. (2013). Cross-Task Crowdsourcing <http://www.cse.ust.hk/~qyang/Docs/2013/kdd2013-ctc%205June-1.pdf>
- Murphy, L. M. & Edwards, P. L. (2003). Bridging the Valley of Death: Transitioning from Public to Private Sector Financing. National Renewable Energy Laboratory, NREL/MP-720-34036. <http://www.nrel.gov/docs/gen/fy03/34036.pdf>
- Nofsinger, J. R., and Wang, W. (2009). Determinants of Start-up Firm External Financing Worldwide. Available at http://www.clevelandfed.org/research/Conferences/2009/3-12-2009/Nofsinger_Wang.pdf
- Peneder, M. (2010). The impact of venture capital on innovation behaviour and firm growth. *Venture Capital*, 12(2), 83-107.
- Schutjens, V. A.J.M. and Wever, E. (2000), Determinants of new firm success. *Papers in Regional Science*, 79: 135–159. doi: 10.1111/j.1435-5597.2000.tb00765.x
- Sharma A. (2010). Crowdsourcing Critical Success Factor Model. Strategies to harness the collective intelligence of the crowd. Working paper <http://irevolution.files.wordpress.com/2010/05/working-paper1.pdf>
- Smeets, B.C.W. (2011). Crowdsourcing the process to innovation.
- Smith D., Manesh M.M.G., Alshaikh, A. (2013). How Can Entrepreneurs Motivate Crowdsourcing Participants? *Technology Innovation Management Review*
- Vukovic M. and Bartolini C., Towards a Research Agenda for Enterprise crowdsourcing. In: M. Tiziana and S. Bernhard (eds) *Leveraging Applications of Formal Methods, Verification, and Validation* (Springer, Berlin/Heidelberg, 2010) 425-434 [Lecture Notes in Computer Science 6415].
- Zainon N., Salleh H. (2011). Dimensions of information technology infrastructure flexibility in improving management efficacy of construction industry perspective: A conceptual study. *African Journal of Business Management* Vol.5 (17), pp. 7248-7257, available online at <http://www.academicjournals.org/AJBM> DOI: 10.5897/AJBM10.867
- Zogaj, S., Bretschneider, U., Leimeister, J.M. (2014). Managing Crowdsourced Software Testing: A Case Study Based Insight on the Challenges of a Crowdsourcing Intermediary. A Case Study Based Insight on the Challenges of a Crowdsourcing Intermediary. In: *Journal of Business Economics (JBE)* (DOI:10.1007/s11573-014-0721-9), Erscheinungsjahr/Year: 2014.
- Zott, C., Amit, R., Massa, L. (2011). The Business Model: Recent Developments and Future Research. *Journal of Management*. Vol. 37 No. 4, July 2011 1019-1042. DOI: 10.1177/0149206311406265