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ABSTRACT

The development of ICT caused changes in business approaches and models as well as various new phenomena such as crowdsourcing, gamification, big data, and internet of things. The present paper provides analysis of crowdsourcing and how it contributes to business model innovation as well as consumer engagement. Based on the analysis consumer engagement dimensions are defined and application opportunities of crowdsourcing in business model context are determined. These constructs are integrated and empirically tested in Lithuanian market defining what is a level of consumer engagement in crowdsourced activities used for business model innovation.

Keywords: business model innovation, consumer engagement, crowdsourcing.

INTRODUCTION

The development of ICT caused changes in business approaches and models as well as various new phenomena such as crowdsourcing, gamification, big data, and internet of things. These phenomena are based on the assumption that ICT use is increasing among companies and consumers and as consequence, consumers will be actively using ICT based solutions. However according to various empirical research the digital environment is characterized by active content use and low consumer engagement in various activities.

Crowdsourcing seems to be attractive to companies as it enables them to delegate various tasks to the large crowd of unidentified people [15]. This approach can be very important to business model innovation as well as for achieving competitive advantage. Recently companies such as Kickstarter, Uber, Kiva, Threadless, Kluster successfully adopted crowdsourcing approach.

As various crowdsourcing platforms appear companies innovating business models are facing two options: to use outside crowdsourcing platforms or to implement crowdsourcing by themselves. Despite of the choice companies face a challenge: how to engage consumers in crowdsourced activities?

Having in mind that both crowdsourcing based business model innovation and consumer engagement concepts are relatively new, the present paper will analyse crowdsourcing and how it contributes to business model innovation as well as consumer engagement. Therefore, the research problem might be formulated as following: what kinds of engagement are facilitated by using crowdsourcing in different business model elements? To answer this question several research objectives will be addressed:

- To provide literature review on crowdsourcing based business model innovation and consumer engagement;
- Empirically assess the level of consumer engagement in crowdsourced activities used for business model innovation.

Research methods

Theoretical background review is based on systematic and comparative analysis of scientific and practical sources. The primary data was collected through an empirical online survey in Lithuania.

CROWDSOURCING

J. Howe introduced term *crowdsourcing* in 2006 [12]. The term was specifically used to describe users' activities for content creation. Web 2.0 technology penetration facilitated content co-creation and consumer generated content growth. [12] described crowdsourcing phenomenon as "the act of a company or institution taking a function once performed by employees and outsourcing it to an undefined (and generally large) network of people in the form of an open call". This definition provided wider perspective compared to terms as *customer made*, *content co-creation* or *user generated content*.

[3] defined crowdsourcing as "an online, distributed problem-solving and production model". In later research [4] defined crowdsourcing as "a strategic model to attract an interested, motivated crowd of individuals capable of providing solutions superior in quality and quantity to those that even traditional forms of business can".

[8] carried out extensive studies of crowdsourcing phenomenon and proposed integrated definition, covering various aspects of crowdsourcing. According to them, crowdsourcing might be defined as "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."

According to [4], there are four crowdsourcing deployment approaches: knowledge discovery and management, distributed

human intelligence tasking, broadcast search and peer-vetted creative production. [8] suggest companies need to consider several important issues before using crowdsourcing within the company:

- Who forms the crowd?

- What the crowd has to do?

- What does the crowd get in return?

- Who is initiator of the crowd?

- What type of process is used to implement crowdsourcing?

- What type of call is going to be used?

- Which medium is used for crowdsourcing?

According to [24] "the concept of crowdsourcing has so far been discussed as enabling new forms of business models". Business model is widely accepted concept defining companies' business logic. The *Business Model Canvas* described in [16] is widely used by researchers, consultants and practitioners. Several initiatives were made to identify interrelations between crowdsourcing and business models. [7] proposed Crowd Business model framework which identifies 22 categories of crowdsourcing services and 8 business models. [19] in their research suggested several different types of crowdsourcing based business models: intermediary model, citizen media production model, digital good sale model, collaborative software development model, product design model, peer-to-peer social financing model, consumer report model, knowledge base build model, collaborative science project model. On the other hand, [1] suggested that companies can used value chain concept in order to understand which part of the activities can be crowdsourced.

BUSINESS MODEL INNOVATION THROUGH CROWDSOURCING

The business model concept besides describing generic business logic, helps companies to understand how they can compete in the market and develop competitive advantages. Competitive advantages can be developed internally by using own resources and externally by using resources outside of the company such as partners or consumers. Crowdsourcing is increasingly considered to be a way for engagement of company with external partners, particularly consumers, in order to enhance certain aspect of business model [2].

From perspective of Business Model Canvas [16] 9 business model building blocks must be considered as important. However, not all the building blocks can be aligned with crowdsourcing though some of them already are widely associated with crowdsourcing. Crowdsourcing relates to task undertaking, thus such Business Model Canvas building blocks such as Customer Segments, Key Partners and Cost Structure depend on decision which company makes, but do not refer to a certain process or task to implement this decision. All these building blocks can be heavily affected by crowdsourcing. For instance, users can become *key partners* (e.g. in case of Facebook users are the main content creators / sharers), users can help reach *new segments*, and typically it is expected for crowdsourcing to reduce *costs* [25].

From the point of Revenue Streams building block in Business Model canvas, crowdfunding as a specific case of crowdsourcing might be identified with companies such as Kickstarter, Fundable, IndieGoGo being good examples of such crowdsourcing. From the point of view of other Business Model Canvas building blocks, companies have been already actively using crowdsourcing:

- Users are engaged directly and have the opportunity to contribute solution-based information to innovation processes, which have turned out to be a successful way for the development of new products or services [24]. This refers to Value Proposition building block. Fiat Mio project demonstrated how crowdsourcing of a firm's product development activities can be implemented.

- Users can act as agents of the company sharing information about company and building brand awareness. Skype successfully crowdsourced marketing activities through viral marketing using users as marketing agents facilitating software spread between users. This refers to Channels building block.

Crowdsourced activities vary and there are many opportunities to engage consumers in company activities for identifying opportunities of business model innovation. Innovation of business model by using crowdsourcing is based on tasks performed by large crowd of unidentified people. Therefore, besides understanding crowdsourcing applicability in business model perspective it is important to gain understanding about consumer engagement: why and how consumers engage with the

company?

USER ENGAGEMENT

The engagement concept has been studied in various disciplines, such as philosophy, psychology, sociology, and political sciences [26]. Recently engagement concept also has been addressed by other social science disciplines such as management, marketing, HRM. Engagement concept refers to "enhanced predictive and explanatory power of focal consumer behaviour outcomes, including brand loyalty" [11].

Engagement subjects and engagement objects define the nature of engagement. From the point of marketing discipline researchers aim to understand and to explain consumer behaviour in different situations. In the context of our research, we are trying to understand how engaging are crowdsourcing based business activities.

Although the engagement concept is analysed from perspectives of various disciplines, [6] suggest that the concept of consumer engagement may vary depending on different interpretations of it, and, therefore, suggest three approaches:

- Consumer engagement as a psychological process that leads to the formation of loyalty.

- Consumer engagement as behavioural manifestation from a customer toward a brand/company that goes beyond purchase behaviour.

- Consumer engagement as motivational psychological state.

The dominating area of engagement research is brand engagement. These studies aim to understand why and how consumers engage with brads and many descriptive and qualitative research studies carried out in this area in order to identify potential antecedents and consequences of consumer engagement with brands and brand communities. Such interest is explained by earlier research [9] demonstrating consumer engagement is directly and positively related to satisfaction, trust, affective commitment, loyalty and other relationship constructs. Research also demonstrates significant associations of engagement with self-brand connections and brand usage intentions. These constructs are considered to be the consequences of consumer brand engagement.

Despite the growing interest empirical research on consumer engagement are rare. In the last years research [11] [5] [21] focused on the development of scales of consumer engagement.

Another important research trend is related to the dimensionality of consumer engagement. The two broad perspectives to engagement varies in the research: consumer engagement can be considered to be a unidimensional [10] or multidimensional [5] [11] [21]. The researchers referring to unidimensional view to engagement suggest that one dimension is identified as the dominant one. However, there is no agreement which dimension is dominated one. Some researchers emphasised the importance of cognitive dimension, while others suggest emotional dimension is the most significant one. [11] noted, that that cognitive, emotional and behavioural dimensions are most commonly identified in scientific literature related to consumer engagement studies:

- Cognitive dimension: consumer's level of engagement object related through processing, concentration and interest in specific object (business enterprise, brand, online social network, brand community).

- Emotional dimension: a state of emotional activity also known as the feeling of inspiration or pride related to and caused by engagement object.

- Behavioural dimension: a state of consumer behaviour related to engagement object and understood as endeavour and energy given for interaction.

The multidimensional perspective aims to combine different dimensions in order to represent consumer engagement construct in more detail. The recent research of the engagement concept [21] [17] [18] supported the idea that the conceptual essence of consumer engagement is best revealed by multiple dimensions. Therefore, it can be concluded that consumer engagement is a multidimensional construct defined by cognitive, emotional and behavioural dimensions and it is important to define what dimension plays the dominant role in different crowdsourced business model activities.

RESEARCH DESIGN

As mentioned earlier, paper aims to empirically assess the level of consumer engagement in crowdsourced activities used for business model innovation and Figure 1 depicts overall generic research approach employed in this paper.

To achieve the above aim of research: (1) a quantitative online survey method was chosen for data collection from consumers; (2) qualitative analysis of crowdsourcing activities identified by respondents; (3) mapping crowdsourced activities from *(2)* and level of consumer engagement based on data gathered from *(1)*. Though survey covered wider array of questions and target populations, only aspects related to research presented in the paper will be discussed in detail.
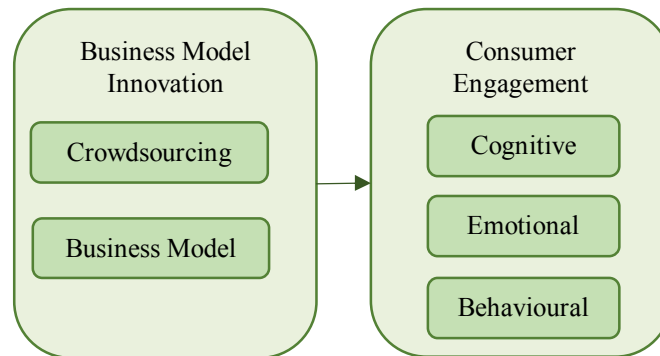

Figure 1: Research model

The research survey consisted of multi-item 5-point rating scales, from 1 meaning "Totally disagree" to 5 meaning "Totally agree", respectively. A scale of 11 items was used for consumer engagement (based on [21] [11]). The reliability of scales was tested with Cronbach alpha coefficients and tests indicated high internal consistency of developed scales, with the coefficients ranging from 0.870 to 0.943 (see Table 1).

Table 1: Reliability of measurement scales

Scale	No. of items in a scale	Cronbach alpha coefficient
Consumer engagement	11	0.943
Cognitive engagement	3	0.870
Emotional engagement	5	0.908
Behavioural engagement	3	0.911

The target population in this research are people, who are/were engaged in some crowdsourced brand/company activities anytime in the past six months. As mentioned, survey was dealing with wider array of questions, therefore, no specific brands or activities there indicated to respondents. The respondents for this survey were selected by non-probability convenience sampling method.

All the cases for which respondents identified engagement with brands were manually checked and classified. Cases were attributed to ones as crowdsourced activities if respondents indicated that (1) they were actively contributing to some value creation for the brand (i.e. designing a label); (2) indicated a brand that had recently one widely known engaging crowdsourced activity, but no other engaging activities as of recent; (3) did not specify a brand at all but described contributing to some value creation for the brand.

Analysis of the above crowdsourced activities was carried out by identifying the brand and the specific crowdsourced activity. Later was then analysed (if possible) in order to identify which building block of Business Model Canvas [16] it is related most strongly.

For mapping crowdsourced activities and level of user engagement, types of crowdsourced activities were identified for each respondent and comparison of means of each engagement dimension was performed.

RESEARCH RESULTS

Survey was distributed in Lithuania in spring 2015. Total of 750 respondents answered the survey questions. However, only 5.20% engaged in some crowdsourcing activities of some brands or companies. Therefore, data analysis and research results are based on answers from 39 respondents. Respondents who engaged in crowdsourced activities were mostly females (about 82%) and of average age of 29 years.

36 of these respondents indicated specific company or brand they engaged with through crowdsourced activities (see Table 2). 3 respondents described engaging with unspecified brand by contributing to some value creation (i.e. stating "designing a logo for
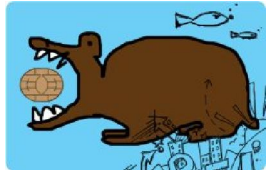
a new company", "creation of new beer in some brewery").

Table 2: Crowdsourcing cases identified in the survey data

Code	Company	Brand / product	N	%
C1	UAB "Suslavičius-Felix"	Ketchup "Suslavičiaus"	27	69%
C2	"FERRERO spa"	"Kinder Chocolate"	3	8%
C3	UAB "SKINIJA"	Socks for children	2	5%
C4	AB "Swedbank"	Youth bank card ZOOM	2	5%
C5	Hesburger	Burger	1	3%
NA	No specific company / brand / product indicated		4	10%

Table 3 summarises the case analysis of crowdsourced activities identified from survey data. As seen from descriptions, consumers in Lithuania are most often engaged in creative tasks crowdsourced by companies (such as designing a label, logo, product, and creating a recipe). This might imply consumers do not find other kind of tasks engaging or do not perceive performance of such tasks as active engagement with companies.

Table 3: Crowdsourcing case analysis

Code	Description
C1	Users were invited to create a design of a new label for ketchup brand "Suslavičiaus". Gamified application was used for design development. 14000 users participated in the activity and company chose 5 designs to be used on the produce. [22] *Ketchup with Selected label designs*
C2	Users were invited to submit photos of their children to be chosen a new local face of Kinder Chocolate. Selection was made online and one photo of boy (out of 250) and one of girl (out of 335) were chosen [13] *Selected children*
C3	Company organises annual sock design competition for children. Designs are evaluated by design experts. In ten years over 60000 sock designs created by children were submitted and 55 of them there produced as socks and tights for children. [20] *Socks produced based on some of selected designs*
C4	Young users of bank cards in the youth program ZOOM of AB "Swedbank" were invited to create design of bank cards. Best design was selected by voting of other program participants. Competition was organised several times since 2008. Winner designs were used for a while on new bank cards issued in the program. [23] *One of selected designs*
C5	Facebook fans of Hesburger were invited to build new recipe for a burger using gamified application. 2027 recipes there submitted and winner recipe was voted up by 1368 peers and was offered to clients as one of meals in Hesburger restaurants soon after. [14] *Burger with winning recipe*

Alignment of the identified cases with Business Model Canvas is presented in Table 4. Though theoretical analysis indicated crowdsourcing could be applied in six out of nine building blocks of Business Model Canvas, the cases identified from survey data are most strongly related to three of them: Value Proposition, Key Activities, and Key Resources.

Table 4: Crowdsourcing case mapping with Business Model Canvas

Business model Innovation	Cases	N*
Value Proposition: Ideas for new services or products.	C3, C5	4
Key Activities: Design of product labels, packaging, etc.	C1, C4	30
Key Resources: Human resources (new faces for advertising).	C2	5

* Answers of respondents with unspecified cases were added based on description

Analysis of survey data shows that overall consumer engagement in crowdsourced activities is not high (2.911, meaning below 3 points that meant "neither agree, nor disagree" for statements on multi-item scales used in the survey). However, engagement varies across different engagement dimensions and in different types of crowdsourced activities.

It should be noted, that highest consumer engagement was found for crowdsourcing activities related most strongly to Key Resources building block of business model (3.564). Respondents perceived cognitive engagement most prominently (3.102), while other types of engagement were not recognised as strongly. Level of emotional engagement in crowdsourcing activities related to Value Proposition building block of business models is worth noting as well (3.150). This might be associated with heightened emotional state of consumer who get involved in development of the product rather than just packaging or other external features of product.

Table 5: User engagement in crowdsourced activities

Business model building block		Cognitive	Emotional	Behavior	Engagement
Key Activities	Mean	2.977	2.833	2.522	2.788
	Std. Deviation	0.926	0.935	0.031	0.908
Key Resources	Mean	3.800	3.680	3.133	3.564
	Std. Deviation	0.767	0.889	0.691	0.551
Value Proposition	Mean	3.166	3.150	2.666	3.023
	Std. Deviation	0.333	0.251	0.720	0.343
Total	Mean	3.102	2.974	2.615	2.911
	Std. Deviation	0.895	0.916	0.971	0.860

Low values of behaviour engagement might be due to nature of statements used in multi-item scales in the research. These statements are mostly related to participation in brand community. Though statements show strong internal consistency of scale (see Table 1), crowdsourcing itself typically does not involve participation in brand community, therefore consumers might have valued it down as they did not get as much involved in brand community as in crowdsourced activity itself.

CONCLUSIONS

Crowdsourcing is an increasingly popular way to perform various tasks and business activities. It can be applied for different business functions or business model blocks, such as development of Value Proposition, maintaining of Customer Relations and distribution Channels, Key Resource acquisition and performing Key Activities. Successful application of crowdsourcing could result in business model innovation as well as to gain desired benefits.

As for successful crowdsourcing active consumer engagement is crucial, companies need to understand different types of engagement, such as cognitive, emotional, and behaviour. Theoretical analysis allows us to assume that engagement dimensions might varyingly dominate overall consumer engagement in different context. Therefore, is important to define what dimension plays the dominant role in different crowdsourced business model activities.

Empirical research helped to identify five crowdsourcing cases used in business models of Lithuanian companies that surveyed consumers engaged with. Case analysis of those crowdsourced activities revealed that those are most strongly related to three out of six building blocks of Business Model Canvas, namely Value Propositions, Key Activities and Key Resources. The analysis of survey data indicates that overall engagement in crowdsourced activities is rather low. However, consumers fell most engaged in crowdsourced activities related to Value Propositions and Cognitive Engagement is dominating one out of the three engagement dimensions.

Authors of the paper recognise several limitations of the research presented, such as: small sample of cases analysed and small number of respondents engaged in crowdsourcing activities. This resulted in only three of possible six building blocks of Business Model canvas being analysed. Larger sample and cases covering all six building blocks could provide more conclusive results.

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