Orchestrating Firm Sponsored Communities of Interest: A Critical Realist Case Study

Completed Research Paper

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Abstract

The growth of social media enables firms to co-create value with customers in online communities. The lack of authority of the sponsoring firm in online communities brings questions on how to orchestrate all members of the online community. The extant literature is unsettled about whether sponsoring online communities by firms are worthwhile, and what shapes value co-creation in these communities. Through a critical realist case study, we examined a firm sponsored community of interest in Indonesia. We found that the sponsoring firm should play roles as a co-creator and as a facilitator and switch between them to navigate a community of interest. This study contributes to current knowledge: (i) we propose three mechanisms in the community of interest and how those can be conditioned by the firm roles when orchestrating communities of interest; (ii) we provide an example of a critical realist case study in the field of information systems.

Keywords: critical realism, co-creation, firm online sponsored communities, value co-creation

Introduction

Firm-sponsored online communities have been described as information systems (IS) initiatives sponsored by a firm to co-create value with their external product or service users (Yan et al. 2018). Firms are increasingly considering these online communities to co-create value with customers in production, innovation, and information dissemination (example: Pee 2016; Svahn et al. 2017). This is because contemporary business environments with open systems and hyper-competition make it difficult for firms to excel at developing new products and services, bring them quickly to the market, and sustain them.

While there is a lot of support in extant literature for taking advantage of customer engagements in these communities (Abedin, 2016; Pee 2016; Tavakoli et al. 2017), some scholars argue that simply collecting ideas from firm sponsored online communities is not helpful, and firms need to understand how to deal with ideas and orchestrate various actors involved (Abedin & Babar, 2018; Dong and Wu 2015). Consequently, information systems (IS) scholars are still examining challenges and constraints of these communities for value creation and innovation and what effective strategies firms need to utilize technology to benefit from their potentials (Yan et al. 2018).

Recent studies in information systems and organization science have shown that online communities devoid of traditional structure mechanism (Erfani & Abedin, 2018; Lusch and Nambisan 2015). One of the fundamental characteristics of online communities is its fluidity (Faraj et al. 2011). Fluidity is the dynamic configuration of organizational structures. This means in online communities, norms, participants, and interactions continually and constantly change over time. The primary focus of previous research on online communities does not explore the interactive dynamic of the community. Scholars such as Nambisan et al. (2017) and Faraj et al. (2015) have recently called for more research into understanding these sociotechnical phenomena.

Seeking greater value through online communities reflects a shift in thinking from the firm as a definer of value to more participative customers which is widely known as value collaborative creation or value co-creation (Ind and Coates 2013). In online communities, the sponsoring firm lacks authority to issue commands, and the individual participants are not obligated to obey. The firm is assumed to have the responsibility to coordinate value co-creation which is then called as orchestration (Nambisan et al. 2017). The orchestration of autonomous participants to collaboratively create value require researchers to put the focus on the process rather than outcomes only (Dhanaraj and Parkhe 2006). Processes in online communities consist of events which involve people, technology, materials, idea, social structures, and many other things. Understanding the process requires an understanding of why events occur. However, the explanation of the occurrences of events is seldom discussed in the information systems literature (Mingers and Standing 2017).

We see this as an opportunity to develop a critical realist (CR) case study which emphasizes the explanation of the occurrences of events in firm sponsored online communities. The CR paradigm allows researchers to develop and support in-depth explanations for the outcomes of sociotechnical phenomena that take into account the breadth of information technology, social, and organizational factors (Mingers and Standing 2017; Wynn and Williams 2012). Currently there is a lot of literature that elaborates what CR paradigm is and what opportunities it can offer to information systems studies. However, little empirical research in the IS literature have used a CR paradigm, which has led to calls for more empirical studies using this paradigm (Williams and Karahanna 2013). Thus, this study is an attempt to answer this call by employing the methodological principles offered by Wynn and Williams (2012) for the conduct and evaluation of CR case study research.

Among different types of online communities, this paper focuses on online communities of interest which are social networks in which members have a shared interest and acknowledge their membership in the groups. Considering the importance of value co-creation in online communities in information systems field, and considering that our understanding of the orchestration of value co-creation in online communities is underdeveloped, this study aims to examine firm-sponsored online communities to understand what shapes value co-creation. Particularly, we are interested in the firm roles in orchestrating value co-creation so that the participants are willing to participate. From a theoretical point of view, this study uses service dominant logic and sociomateriality as well as a CR approach to study one firm sponsored community of interest. Thus, this paper aims to answer how communities of interest shape value co-creation?

The remainder of the paper is organized as follows: Section 2 presents the background and gaps in the literature; Section 3 presents the methodology for the CR case study; the findings and the discussion are presented in Sections 4 and 5; and Section 6 discusses limitation of this study and implications for the theories and practical recommendations. At the end of the paper, conclusions and recommendation for future studies are discussed.

Background

Firm Sponsored Online Communities of Interest as a Fluid Organization

Communities of interest including online health communities provide a means for individuals to share experiences and gain support leading to better health outcomes (Stewart Loane et al. 2015) (e.g., the Harley Davidson™ community, the Mdjunction.com). These communities focus on the development of relationships. Mostly, they have online and offline interactions to develop a more intimate

relationship, for example, brandfest events (Wu and Fang 2010). Communities of interest tend to develop a strong communal identity (Seraj 2012) by having their rules, norms, and languages.

One of the fundamental characteristics of online communities is its fluidity (Faraj et al. 2011). Fluidity is the fluid configuration of organizational structures. Internet-based technology platforms make it possible for traditional organizations to become more fluid. The platform allows participants to be connected beyond location and time boundaries. They also have indefinite boundaries to figure out who is in and who is outside. Many individuals in online communities are at various stages of exit and entry that change fluidity over time. The participation ranges from highly committed to partaking in different ways at different points of time. Despite this, more work is needed to explore the dynamics of the interactions of online communities (Faraj et al. 2011; Lusch and Nambisan 2015; Nambisan et al. 2017; Ransbotham and Kane 2011).

Although fluidity may lead to negative impacts that fosters further disruption and tension, Faraj et al. (2011) argue that fluidity can provide opportunities for collaboration when the community responds to this in ways that encourage interactions. Their argument offers some promising starting point to understand the interaction among actors in nontraditional organizations (Lusch and Nambisan 2015; Nambisan et al. 2017). The first response is named Engendering Roles in the Moment. In this response, members enact specific roles that help turn the potentially negative situation into a more positive situation. One of the examples of this is explained by Gebauer et al. (2013). Their case study shows that individual participants in the online community who have a high sense of community may respond to negative comments in positive ways. The second response is labeled Channeling Participation. In this response, members help keep other fluid participants informed of the state of the knowledge. The third response is labeled Dynamically Changing Boundaries. In this response, online communities change their boundaries in ways that discourage or invite certain resources into and out of the communities at certain times. The fourth response is called Evolving Technology Affordances. In this response, online communities iteratively change their technologies in use in ways that are embedded by and become embedded into, iteratively enhanced social norms. These iterations help the online community socially and technically responses to changes because of its fluidity so that the community does not disappear.

Theoretical Background

Value is often seen as the relationship between what one benefits and what one sacrifices (Grönroos 2011a). Various scholars have taken different approaches to explore value co-creation, and to present what actors are involved in firm sponsored online communities, and how they may be related. Some studies emphasize on the firm capability to transform ideas into implementation, including the internal employees' involvement, to produce value for the firm (Dong and Wu, 2015; Yan et al., 2018). Other studies emphasize the interactions between members in online communities as a key element of value co-creation in online communities (Grönroos and Voima 2013; Suseno et al. 2018). Here, scholars shift the idea of value co-creation from firm dominated perspective into other stakeholders' perspective. Henfridsson et al. (2018) introduce a way further to involve technology in value co-creation and emphasize the influence of participants. However, this study does not answer whether there are any limits to the influence of participants (Monteiro, 2018). Given this, establishing digital value co-creation as a research domain is challenging because of reifying the agency of actors caused by reducing the complexity of interactions in the digital environment (Holmström 2018).

Value co-creation in firm sponsored communities is usually used to describe the participative process between people and a sponsoring firm to generate value (Ind and Coates 2013). Vargo and Lusch (2004) introduce a new perspective to value co-creation, which moves the focus from tangible outputs to a service dominant logic (SDL). SDL can explain the role of customers in co-creating value (Grönroos 2008; Payne et al. 2008; Prahalad and Ramaswamy 2002; Vargo and Lusch 2004). Through the perspective of SDL, value is a dynamic, experiential, and contextual benefit that is provided by a service (Barrett et al 2015). The participative interactions within online communities create a dynamic network of service exchange that is spontaneously sensing and responding within an ecosystem operating under agreed rules to regulate the interface and exchange (Vargo and Lusch 2016). Given the above, we conceptualize the engagements in sponsored online communities as an ecosystem. This ecosystem comprises two sub-systems inspired by Grönroos (2011b): in the first sub-system, it is the firm's

responsibility to invite participants for co-production and resource integration. As a result, the first is directly engaged in value co-creation. Whereas in the second sub-system it is the participants who actively engage with their peers in the value co-creation. In this sub-system, the firm plays the facilitator role. These two subsystems spontaneously sensing and responding to each other in a service ecosystem under agreed rules.

We also use sociomateriality lens to mediate our understanding of value co-creation in SDL. Through sociomateriality, routines are the result of imbrications of human and material agencies (Leonardi 2011). In SDL, routines are equivalent to resource integration as explained by Singaraju et al. (2016). Thus, 'human' and 'technology' can also be seen as actors in SDL that together develop service ecosystems. This study uses the affordance lens in particular for 'technology' to emphasize the interpretation of the features that depend on the human. Whether the technology is used in their routines depends on the human interpretation of the features and how far they are able to adapt to each other. Thus, building on sociomateriality and SDL, we theorize actors of value co-creation into four categories: Firm, Technology, Individual Participant, and Social. Sociomateriality's critical realism differentiates 'social' from 'individuals' (Faulkner and Runde 2013), in which social reflects interaction between actors.

Given the above, this study conceptualizes the interactions in sponsored online communities as an ecosystem inspired by SDL and sociomateriality. The SDL provides us with knowledge about firm roles in value co-creation which is then identified as two sub-systems in the ecosystem: in the first sub-system, it is the firm's responsibility to invite participants for co-production and resource integration. As a result, the first is directly engaged in value co-creation. Whereas in the second sub-system it is the participants who actively engage with their peers in the value co-creation. In this sub-system, the firm plays the facilitator role. The visible communication in these two subsystems creates opportunities for the firm to switch role from as a facilitator to a co-creator. The sociomateriality helps us to identify actors in the communities of interest: individual participants, the sponsoring firm, social, and technological.

Context and structures developed from Actors in Online Communities

Critical realist case study requires the explication of structure and context. A structure is identified as a system of human relations and seen as actual entities which have emergent properties (Dobson 2001), whereas the context is the setting of phenomena. Accordingly, in this study, social and technology actors are classified as the structure of firm-sponsored online communities whereas other actor attributes are considered as the given context of the events.

A systematic literature review from 2000 – 2017 was conducted to identify attributes of these four actors to enable value co-creation. Table 1 summarizes the list of attributes of actors.

Table 1. List of Attributes of Actors in Communities of Interest

Actor	Attribute
Firm	Participatory Leadership (Chen et al. 2012; Gebauer et al. 2013) Reward System (Hall and Graham 2004; Jeppesen and Frederiksen 2006; Nambisan and Nambisan 2008) Transparency (Nambisan and Nambisan 2008)
Individual Participant	Motivation (Brodie et al. 2013; Constantinides et al. 2015; Füller 2010; Roberts et al. 2014) Personal Attributes (Bugshan 2015; Jeppesen and Frederiksen 2006; M. Kang 2014; Mai and Olsen 2015) Personal Evaluation (Blasco-Arcas et al. 2014; M. Kang 2014)
Social	Equality (Gebauer et al. 2013; Wiertz and de Ruyter 2007) Information Quality (Laing et al. 2011; Seraj 2012) Sense of Community (Brodie et al. 2013; Gebauer et al. 2013; Healy and McDonagh 2013; Zhang et al. 2015b; Zhao et al. 2015) Similarity (Brodie et al. 2013; Misra et al. 2008; Zhao et al. 2015)

	Trust (Laing et al. 2011; Seraj 2012; Zhao et al. 2015)
Technology	Association (Blasco-Arcas et al. 2014; Hasan and Rahman 2017) Interactivity (Füller et al. 2009; Kohler et al. 2011; M. Kang 2014; Misra et al. 2008) Persistency (Booth and Kellogg 2015; Hasan and Rahman 2017) Visibility (Cheung and To 2016; Hasan and Rahman 2017; Kohler et al. 2011; Zhang et al. 2015a)

Critical Realist Case Study

Critical realists see the reality as intransitive (independent of humans) which are stratified into three ontological domains (Laclau and Bhaskar 1998; Mingers et al. 2013; Nellhaus 1998): *the real*, *the actual*, *the empirical* (Williams Wynn, 2018). This means that critical realist accepts the various types of knowledge which have different ontological and epistemological characteristics. It accepts that knowledge is local and historical, but not judgemental relativity (that all viewpoints must be equally valid). Critical realists content that the way we understand the reality, particularly in the social realm, depends on the individuals' beliefs and expectation, therefore they accept the subjectivity in the understanding of the phenomenon. The picture below (Figure 1) depicts how a critical realist develops a theoretical explanation through connecting the stratified reality by identifying events and mechanisms (Mingers 2004).
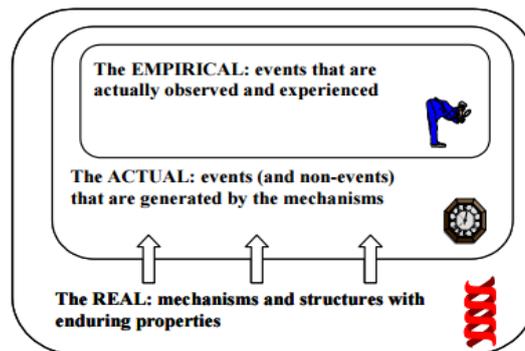

Figure 1 Three Ontological Domain in Critical Realism (Mingers 2004)

This study employed the methodological principles offered by Wynn and Williams (2012) to support the conduct and evaluation of critical realists case study research. These principles include explication of events, explication of structure and context, retroduction of mechanisms, empirical corroboration of hypothesized mechanisms, and adoption of triangulation and multiple research methods. Table 2 elaborates how the CR principles are applied to this study.

Table 2 Application of CR Principles in this Study

CR Principles	Activities	This Study
Explication of Events	Identify and abstract the events being studied. Resolve complex events or phenomena into parts.	Events are identified through online texts from the online communities and interviews. Events are classified into two groups based on firm roles.
Explication of structure and context	Re-describe the events in a theoretically meaningful way. Identify components of social structure and physical structure, the contextual environment from actor's point of view.	Explore structure and contexts through common properties of actors in the case study. We combined literature-driven template coding with inductive code generation methods.

Retroduction	Identify and elaborate tendencies of structures that may have interacted to generate explicate events	Propose mechanisms to explain how firm orchestrates the online community. Find logical and analytical support for the mechanisms.
Empirical corroboration	Ensure the proposed mechanisms has causal power. This is conducted by validate the proposed mechanisms based on data.	Validate the mechanism by collecting empirical evidence from the case studies. Mechanisms should be able to explain events occurring in cases.
Triangulation	Employ multiple approaches to support findings and analysis	Collect data from two sources (text in the online community and interview with members of the online community)

Field Site

To address our research questions, we conducted a study within a firm sponsored online community called ABC (not a real name). The online community was selected based on five criteria (Kozinets 2010) which are relevant, active, interactive, data-rich, and heterogeneous. ABC is a small company located in Indonesia that is established on 12 October 2009. ABC sells various leather bags and pouches in different sizes and models. ABC does not have any physical outlets and also a particular website to sell its products. ABC products are sold only through a facebook™ platform based online community called "ABC Fans" that is sponsored, developed, and nurtured by the firm. ABC Fans has more than 20,000 members. The group was created in early 2015.

Data Collection

Two data types were collected in this study: the content of online community and members' interview. For about 417 community threads with 26,503 comments from 2015 to 2018 were downloaded (169,614 words-1,602 pages). Interviews were conducted to 15 members of the online community. All interviewees are women with age between 32-43 years old. Two interviews were conducted face to face, nine interviews were done by phone, and the rests were done by texts. The interview was done for around 45 minutes per interviewee (417 minutes of recordings + 13 pages of correspondences). Most of the interviewees have been AB member for one year or more.

Data Analysis

The analysis stage consists of four stages. The first stage is the data selection. This stage is particularly aimed to pre-process online text threads. This is then followed by steps based on critical realism approach. There are three focus of the data analysis: (1) explication of events, explication of structure and context, (2) retroduction and (3) empirical corroboration (Wynn and Williams 2012). In particular, this research emphasizes the value co-creation as a process of collaboration and coordination between firm and individual participants, with the assistance of technology in the online community.

The first analysis is to explicate events. In this stage, posters were categorized into two categories, the sponsoring firm, and the individual participants. The content made by individual participants were classified into two categories, initiated by individual participants or to response firm co-creation calls. The second stage is the explication of structure and context. Structure and context are identified based on the literature review that we have conducted before data collection. We combined literature-driven template coding with inductive code generation methods. The coding method used in this research is sourced from Saldana (2016).

The third and fourth stages are retroduction and empirical corroboration. During this process, the author identifies mechanisms that answer the research questions. To identify mechanisms, first, firm roles and how firm switched its role are identified. By carefully studying the critical events related to firm roles,

mechanisms in value co-creation as a collaborative effort among actors were identified. Logical and analytical support for the mechanisms were also explored. This step is followed by empirical corroboration. To demonstrate the efficacy of the logic, proposed mechanisms are tested to selected series of critical events. Series of events are recommended to identify causal mechanisms in critical realism studies (Dobson 2001; Williams and Karahanna 2013).

Analysis and Discussion

Event, Structure and Context Analysis

Event Identification

As a facilitator means the sponsoring firm facilitate interactions between individual participants without having direct interactions with the participants. The firm helped individual participants to co-create value by establishing routine schedules in the online community. The routine schedules offered a way for its participants to share knowledge, self-disclosure, and buy, sell, and barter between its participants. In addition to that, there were other events also occur, which were ideas and reviews, interpersonal relationship developments, complaints, and business opportunities. Table 3 shows events within the firm role as a facilitator.

Table 3 Categories of Events in Firm Roles as a Facilitator

Facilitator Event	Description
Ideas and Reviews	These are initiated by individual participants expressing their ideas or reviews about firm products and services
Interpersonal Relationships	These events illustrate relationships between individual participants.
Knowledge Sharing	Information or knowledge shared by individual participants
Complaints	Complaints about everything related to the online community made by individual participants.
Sell, Buy, & Barter	Sell, buy, and barter between individual participants.
Self-Disclosure	In these moments, individual participants share their collection and stories.
Business Opportunity	Events that accommodate individual participants' needs to promote their private business

The firm becomes a co-creator where there are direct interactions between individual participants and the firm. When the sponsoring firm posted a thread in its online community, it is assumed that the firm is willing to have direct interaction with its members. Table 4 shows events within the firm role as a co-creator.

Table 4 Categories of Events in Firm Roles as a Co-Creator

Co-Creator Event	Description
Product and Service Co-Design	The firm invites individual participants to share their ideas and supports in products or service
Orders and Payments	The firm invites individual participants to complete the process of purchase by themselves
Playful Activities	These events are initiated by the firm that is intended for individual members' amusement rather than serious activities.
Complementary Activities	These events include information and knowledge sharing from the sponsoring firm to their members

The Context of the online Community of Interest

Three themes from individual participants emerged. All the themes relate to the Motivation to participate in AB community events. All the members mentioned these themes and there were no conflict stories between them. Their main motivation are the bags, friendships, and addiction to the community. Below is the example of the interview excerpt and a post made in the online platform.

> "*from bags to sisterhoods…*" Interviewee B.A

> "*have more friends and sisters*" Thread 9.A

Two attributes related to the sponsoring firm were told by interviewees (Transparency and Participatory Leadership). One very strong attributes that all interviewees mentioned was the Participatory Leadership. The Reward System was not part of attributes mentioned by interviewees. Looking at the content analysis, AB provided various rewards for many kind of events. This could be because for interviewees, the reward was no longer important. Friendship was the most reason they participated in AB. Below is the example of one interviewee that describes how the firm listens to the members' needs.

> "*She (the owner of the sponsoring firm) just follows what we want. She would not go anywhere, just like a chick to its mother. She is just the same like us, the member of this community. She does not act as if she were a president ordering us to do things*" Interviewee F.A

The Structure of the Online Community of Interest

Over time, the Sense of Community was developed. The reason they gathered together was beyond bags. They gathered together because they were friends, they knew each other.

> "*We do not only talk about bags, we become closer. Sometimes we send food to each other, meet up*", Interviewee M.A

They developed community identity through several ways. First, they had vocabularies made by them: fairy godmother, and markup resellers (markupers). Second, they also shared how they viewed the AB bag. The bag was seen as a charm that had strong personal connection with the owner and the bag was also seen as a something that had its own destiny (it is the bag who picks the owner). Third, they saw their relationships in AB as sisterhood relationship coming from one family, AB. The intense events in AB brought reasons for its members to get closer. They shared more Similarities and Trust, not only the passion to the bag but also the close feeling because they had worked together in the community. As the community growing, area groups were growing. These local groups were important element of AB. They were mentioned by all of interviewees. These local groups were different from the AB, but they supported the AB online community group to develop Equality. Some posts in the online community were made to introduce these local groups and received many comments from other members to join.

Bagi yang ingin gabung ▓▓▓▓▓ **bisa coment** dibawah ini. ▓▓▓▓▓▓ **and** ▓▓▓▓ **mohon dibantu ya...**	Translation: "*Who wants to join 'ABC Happy', please comment. XXX and YYY, please assist them.*" 'ABC Happy' is a name of a local group. Each local group has different name.

Retroduction Mechanisms

Mechanisms to explain phenomena are the heart of critical realism study. Mechanism is the causes of events that emerge from the structures that exist where these events occur to explain outcomes (Williams and Karahanna 2013). The mechanisms are identified through a phase called as retroduction. Considering the assumption that individual participants and the sponsoring firm are continuing the interaction because they believe that there are benefits for now or in the future, then the continuous

interactions can be seen as the goal. The firm roles should coordinate individual's rules and interrelated rules in the value co-creation ecosystem to continue interactions. In this study, coordination is interpreted as the ongoing process of integrating resources and actors in reaching an agreement and making a collective decision so that they continue to participate. Therefore, what mechanisms in firm online communities are to shape value co-creation should be related to the coordination of value co-creation between individual participants and the sponsoring firm. The coordination then is interpreted as consensus and decision making.

Consensus Making

This study starts its retroduction process from SDL and Sociomateriality theory. Then, based on findings from empirical studies, the study refines the understanding of those theories by proposing mechanisms to explain the phenomena. The idea of mechanisms of value co-creation in firm sponsored online communities comes from SDL which sees co-creation as an ecosystem. One of SDL premise is that value co-creation is coordinated through actor-generated institutions and institutional arrangement. Actor generated institutions refer to rules proposed by actors in the ecosystems, while institutional arrangement refers to interrelated agreed rules by collective actors in the ecosystems. It means that there are one or more mechanisms to create an agreement between actors. Based on events explained in the sub section above, in the micro level, there is a repetitive conversation coming from individual participants to share their understanding of a particular situation in the firm sponsored communities of interest. A member of ABC explained this as the changes of rules.

> "*overtime as ABC grows, the rules are growing too*", Interviewee G.A

There are times the sponsoring firm got involved and changed its role becoming co-creator. However, there are also times that the sponsoring firm decided to stay silent. There is also one time the sponsoring firm (ABC) invites its members to discuss the registration for new members. This is then called as the mechanism of "*consensus making*." This mechanism is the tendency of the sponsoring firm and individual participants to engage in the creation of common meanings and shared understanding. It emerges as individual participants or the sponsoring firm endeavor to understand and establish common ground to enable actions on behalf of the online community. The outcome of this mechanism is consensus or agreed rules.

Consensus Settlement

The firm two roles and the switching between the facilitator role and the co-creator role explained in the subsection above shows that along with consensus making mechanism, there are times that individual participants and the sponsoring firm collectively informed the result of consensus making to other members. In online communities where its participants are fluid (they may come and go as they wish), consensus establishment is challenging. That may happen because new members may not know the previous consensus or they may lose track of updates. One of response that encourages interactions in that circumstances is called channeling participation (Faraj et al. 2011). This response is made by members of online communities that help keep fluid participants informed of the state of the knowledge. This includes not only repetitive reminders and discussions but also actions to participants who disobey the consensus. This mechanism does not produce new consensus, but it strengthens the current consensus. This mechanism is then called "*consensus settlement*." Consensus settlement is the tendency of the sponsoring firm and individual participants to engage in the process of sharing current common meanings and shared understanding by strengthening current understanding. Below is the example of consensus settlement that is reported by one interviewee.

> "*The members work together to find who break rules… (then) report them to the administrator*" Interviewee C.A

Changing Boundaries

From macro perspective, the continuous action to make consensus and the establishment of the consensus making changes in the social and technology structure. These ongoing process gradually changes the online community. During this change, some individual participants may feel that the online community does not fit into their personality anymore and decide to leave. There are also times that the

individual participants are forced to leave. The outcome of the consensus making and establishment mechanism may also develop new social structure and new pattern of technology feature usage as in AB. AB produced local groups which initiate more activities in the online group. AB also used turn off comment more often to respect their order ritual. Either changes in social structure or the participants or technology feature interpretation or routine activities, this shows a mechanism of "*changing boundaries*" that works in the macro layer (Faraj et al. 2011) Table below elaborates the changes occurred in AB from 2015 to 2018 (Table 5).

Table 5 Changes in ABC

Changes in Social
• The growth of sense of community: growth shared sense of responsibility, shared consciousness and rituals, and social bonds.
• Strengthen similarity: love of bags, fight against markup resellers, love the order processes.
• Updated rules
• Members think that this community is more than just bag lovers, it is a sisterhood or a family.
• Task division between the sponsoring firm and individual participants to organize orders, registration new members, and identify markup resellers
Changes in Technology
• File sharing is very important for members to manage order and establish rules.
• Use Google™ form to manage orders.
• Accompanied with Whatsapp™ group to coordinate members.

Firm Roles to Enactment Mechanisms

We mapped the mechanisms to events and found that consensus making occurred in knowledge sharing, ideas and reviews, and product and service co-design events. In the first two events, the idea came from individual participants. In those two events, sometimes the discussions were intense enough to invite the firm to participate and change its role into a co-creator. In the product and service co-design, the firm invited individual participants to share their idea or thought about a particular situation and decision was made according to their responses. Consensus settlement existed in almost all types of events. From the macro perspective, changing boundaries mechanism emerge as the results of mechanisms in the direct relationships between actors. Changing boundaries mechanism refers to the changes in online communities resources. That could be the individual participants or the level of involvement given by the individual participants. Changes is social and technology interpretation are examples of the results of changing boundary mechanism. Table 3 shows the changes that have occurred in the community of interest. The more individual participants are involved in the consensus making, the more individual participants' resource is invited to community in changing boundaries. Listening to individual participants during consensus making will produce consensus that fits to individual participants' needs.

Empirical Corroboration

This section is to demonstrate the empirical corroboration phase of critical realism. The focus of this section is to validate proposed mechanisms. The proposed mechanisms should be plausible to explain value co-creation coordination events in the online community. An analysis to series of events is suggested in critical realist research to study mechanisms. Therefore, to validate the proposed mechanisms, a series of events was selected (presented in Figure 2).
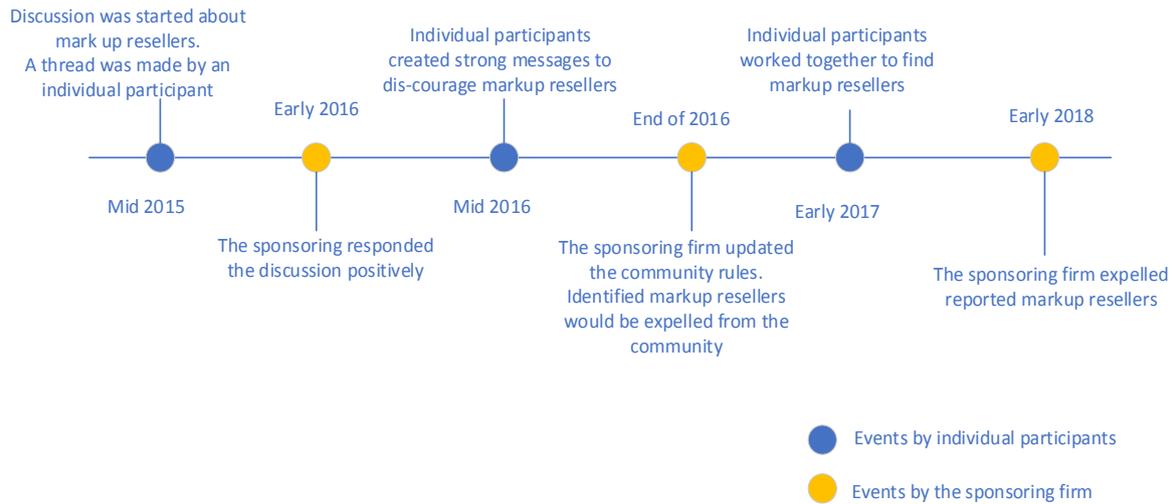
Figure 2 Series of Events to Validate Proposed Mechanisms

The table below elaborates the mechanisms emerge in the markup reseller discussion in both online communities (Table 6). The discussion of markup resellers started in 2015 and agreement is reached in 2016. The community rule was updated. After that, together, individual participants and the sponsoring firm established the consensus by repetitively reminding others. In macro perspective, there were changes in the community because of the enactment of these two mechanisms. First, the rule generated task division between individual participants and the sponsoring firm. It becomes individual participants' responsibility to detect markup resellers.

Table 6 Empirical Corroboration in ABC

Mechanism	ABC
Consensus Making	individual participants started the discussion about markup resellers (mid 2015 – mid 2016). The discussion produced rules about markup resellers (end of 2016). AB formal rule has been updated.
Consensus Settlement	Actions made by individual participants and the sponsoring firm to settle the consensus about markup resellers. They worked together to find markup resellers. Reported markup resellers were expelled from the community.
Changing Boundaries	Task division emerged. It is individual participants' responsibility to find markup resellers, and the sponsoring firm responsibility is to cancel identified markup resellers' membership. Individual participants collectively develop routines to check and identify markup resellers. They continuously checked the order file, the names listed in the order, and other individual participants' post in their social media. They have special name for markup resellers: "markuper".

Conclusion and Limitation

This study explicated the roles of firm in orchestrating value co-creation in communities of interest by using critical realist case study. This effort contributes to the knowledge in at least three ways. Firstly, we connected the firm roles and the enactment of mechanisms in communities of interest. Secondly, we described the process of the value co-creation by considering the fluidity of online communities. This study strengthened the firm role as a co-creator and as a facilitator (Grönroos 2011) and challenged Vargo and Lusch (2016) objection of the differentiation of the firm role. Lastly, we have contributed to the discussion of empirical studies using CR paradigm. This study offers important practical implications for designing new co-creation strategies and for improving co-creation practices, by delineating the resources that can influence value co-creation in online communities. Firstly, the proposed value co-creation model helps firms to understand their roles and factors that are critical for the interactions between actors, and in turn for nurturing online co-creation communities. Secondly,

the model raises firms' awareness about the relationship in sponsored online communities. While the case setting limits the general applicability of our findings, the approach used provides a valuable opportunity to learn from online sponsored community of interest. The scope of study could be expanded by conducting other qualitative and quantitative methods to explore external stakeholders and internal members of the sponsoring firm to explore other perspectives (see Abedin & Qahri-Saremi, 2018 for a more detailed guide). This study also may be exposed by another typical limitation of critical realism study, which is that the proposed mechanisms are tentative and subject to being refined of falsified in other study contexts (Williams and Karahanna 2013). This does not imply discrediting the proposed mechanisms of consensus making, consensus settlement, and changing boundaries. Rather, in open systems, if mechanisms present and activated in other contexts, it may produce different outcomes. The proposed mechanisms were carefully identified from empirical evidence and based on previous studies. These mechanisms are plausible enough to explain the outcome in this specific case.

Acknowledgements

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