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Consumer Co-Creation and Its Impact on Brand Innovation in Digital Platforms

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Abstract

This study examines the effects of consumer co-creation on brand innovation within digital platforms from consumer co-creation activities such as idea generation, feedback provision, and co-design in a quantitative research study. Drawing on a heterogeneity of activities of digital platform users, the study maps and analyses the interference of such activities on multiple dimensions of innovation from novelty to market success. That is the results show that feedback provision has the strongest influence on innovation outcome, followed by idea generation and subsequently by collaborative design. Furthermore, the present research emphasizes on use of digital platforms and degree of engagement on innovation perception, showing that social platform and high degree of engagement was significantly favorably inclined. To some extent, this work fills the gaps which are present in the literature and identified earlier, by presenting the comparative analysis of co-creation activities and their efficiency, as well as by providing recommendations for practitioners and further investigation of the matter regarding the role and influence of co-creation in various settings.

Keywords

Consumer Co-Creation
Brand Innovation
Digital Platforms
Feedback Provision
Engagement Levels

Introduction

The relationship between consumers and brands has changed for the modern consumer and is largely down to the increase in digital media. Consumer co-creation which involves the actual utilization of consumers in the development of certain goods and services has therefore become an important determinant of new brand creation. It is especially noticeable in the digital environment where enhancing possibilities for interaction and cooperation lead to the highest level of consumer participation (Prahalad & Ramaswamy, 2004; von Hippel, 2005).

Consumer co-creation aligns with the idea of open innovation where the external environment, comprising of consumers could provide useful ideas and innovations to the firm and not necessarily from within (De Silva & Wright, 2019; Fernandes & Remelhe, 2016). It has been made possible by the available digital platforms through which the consumer can provide ideas, feedback and engage with the brand in real time. With social networking platforms, related consumer sites, and cooperative applications in place, brands have the chance to tap new

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sources on customer ideation and feedback (Baldwin & Von Hippel, 2011; Fuchs & Schreier, 2011).

According to Ramaswamy & Ozcan (2016) and Sarkar & Banerjee (2021) that in the latest academic studies, different effects of consumer co-creation on distinct aspects of brand innovation have been unveiled. For instance, Nambisan & Baron (2010) and Guiné et al. (2020) showed that consumers participation in product development brings benefits in terms of greater innovation, and in terms of higher market performance. Chuang (2018) and Hoyer et al. (2010), for instance, noted that the different co-creation activities help in the evolution of better and more market-oriented innovations.

Although, studies on co-creation are becoming more abundant in the literature, there is still a scarcity of quantitative studies where the actual impact of consumer co-creation on brand innovation especially from the digital perspective is measured (Royo-Vela & Velasquez Serrano, 2021; Anshu et al., 2022; Nobre & Ferreira, 2017). Although the exact nature of co-creation has been described in earlier qualitative pieces of literature (Koo et al., 2008; Kristensson et al., 2008), there is a need for quantitative evidence capturing the degree and type of this association.

Another factor concerned with consumer co-creation is the kind of activity that consumers pursue (Zare et al., 2019; Kennedy & Guzmán, 2016). There are various forms of co-creation identified in the literature which includes idea creation, feedback provision, and co-design, which are significant in that they diverse in what they offer in terms of innovation consequences (Sanders & Stappers, 2008; Hoyer et al., 2010). For instance, von Hippel (2005) and Schmid et al. (2022) identifies 'lead users', that are customers who submit ideas ahead of others due to their progressive requirements, and 'other users who respond to current products. It is therefore important to examine how these various types of co-creation affect brand innovation so as to be able to design effective co-creation strategies (Roberts et al., 2014; Loureiro et al., 2020; Ind et al., 2017).

Besides, while studying the consumer co-creation, we should also take into account the fact that the influence of co-created content may differ greatly across different digital platforms. Alam (2021) and Cova et al. (2011) have investigated into the arenas of the consumption and the ways through which different types of platforms like social media networks, online forums, and the operational collaborative platforms support different types of consumer cooperation and co-production activities. These differences can include the characteristics of users, ways of interaction, and possibilities of content sharing, which may or may not affect co-creation (Eisenbeiss et al., 2012; De Valk et al., 2014).

To fill these gaps, the present study intends to conduct a quantitative investigation on the effect of consumer co-creation on brand innovation in digital platforms. As such, this research aims to gain insight into the various dimensions of brand innovation that participation of the consumer evokes, namely novelty, relevance and market performance within the context of this study by employing a highly statistical approach, align with research from Syrjälä et al. (2020) and Heidenreich & Kraemer (2015). This research will also seek to understand the part that is played by different forms of co-creation activities to the innovation results and if the differences exist across the digital platforms.

The practical contributions of this research are rooted in the realisation of this research and the applied insights it can offer to practitioners who aim to use consumer co-creation as an innovative strategic tool, align with research from Kruger et al. (2018) and Rihova et al. (2019). Providing insights into the processes of co-creation as the digital platforms develop and consumers' expectations change, theoretical and empirical knowledge can be used by brands

in order to encourage breakthrough engagement with audiences. In addition, this study adds to the body of knowledge on co-creation and innovation by presenting the findings regarding the connection between those concepts and by providing a framework that researchers can build on in the future.

Problem of the Study

The practice of consumer co-creation has emerged as an interesting topic of research in both marketing academia and business over the past years mainly because of the relative new possibilities offered by digital technologies for higher levels of consumer participation. In this regard, and although there is a rich literature covering the topic of consumer co-creation and its qualitative effect on consumers, there is a lack of investigation of the quantity measure of co-creation to brand innovation with specific concern to the digital environment. Consequently, despite the fact that there is a vast number of papers that look into how consumer participation affects diverse aspects of innovation (e.g., Hoyer et al. 2010; Fuchs & Schreier 2011), there is a quantitative, comprehensive investigation of direct connection between various types of consumption co-creation and specific effects on innovation.

This study aims to address the following critical gaps, first of all, there is a lack of prior research investigating the impact of different forms and intensity of consumer co-creation activities, which includes idea generation, feedback provision, and co-design processes on brand innovation. Second, as suggested by prior research, there is inadequate understanding about how different/different classes of DP affect the efficacy of consumer co-creation. Last but not least, consumer co-creation's moderating effect on brand innovation in terms of its originality, its application to the marketplace, and its prospects for success are examine further. To fill these gaps, this study aims at undertaking an improved quantitative analysis of the effects of consumer co-creation on brand innovation in the digital environment.

Research Questions

1. What is the effect of different types of consumer co-creation activities (e.g., idea generation, feedback provision, and co-design) on the innovation results of brands?
2. To what extent do digital plat forms shape the fit of the consumer co-creation process for branding innovation?
3. What is the link between consumer co-creation and particular elements of brand innovation, newness, centrality, and performance?

Significance of the Study

The relevance of this study is rooted in the fact it might generate useful knowledge of the quantitative connection between consumer co-creation and brand innovation in the context of digital media. Given the current trends in digital platforms and the advances in the functionality of these tools in consumer engagement, brands expand the use of these gears to involve consumers in the innovation process. Due to the fact that this study approximates the effects of various forms of consumer co-creation on brand innovation, the results of the study can be useful for practitioners who wish to enhance their co-creation approaches.

It is perhaps useful to look at the relative effectiveness of co-creation activities and social media in determining how exactly brands can support consumers innovation goals in the best possible way. Furthermore, the research outcomes are useful when it comes to creating better models of co-creation that would suit the needs of brands and the market. This research underlines the topic of co-creation and innovation in the academic literature and offers the basis for further research of this topic.

Methods

Ironically, this research used a quantitative research approach to systematically evaluate the effects of consumer co-creation on brand innovation within digital contexts. That is, the purpose was to gain data on the impact of various consumer co-creation tasks on brand innovation with regard to different facets. To this end, the level of study was cross-sectional survey research which allowed the researcher to gather data from a relatively large population at one time. The reason for using this method was its conduciveness in securing a large coverage of response and in measuring the connection between the consumer co-creation and the measures of innovation impact.

In order to generalize the results obtained from the cross-sectional study to increase the representativeness of the sample among the range of digital platform consumers, the method of a stratified random sampling was used. This approach involved classification of the population into sub-groups in relation to categories such as the nature of the co-creation activity in which they participate (idea generation, feedback, collaborative design etc.) and the kind of digital media (social media, online forums, collaborative tools etc.) they use. Participants were randomly selected within each stratum so that the study used a total of 1,500 responding participants. The application of stratified random sampling allowed to achieve the goal of sample incorporation of as many types of co-creation activities and digital platforms as possible, which increases the research's external validity.

Instrument

Survey data were collected using a structured consumer co-creation activities and innovation outcomes questionnaire. The questionnaire was divided into three sections. The questionnaire was divided into three sections. This section was concerned with collection of data on modes and rates of co-creation activities done by participants. These were questions like 'How often are you involved in idea generation for producing a new product?' where responses were on a Likert scale of 1 (never) and 5 (very often). The nature of the task meant that many different aspects of co-creation activities could be scrutinised closely. This section compared various features of brand innovation such as the level of newness, relevance and sales criterion. To capture these dimensions, items borrowed from other studies done in the literature were used where responses were captured on a 7-point Likert scale with point 1 being 'strongly disagree' and point 7 being 'strongly agree'. This section sought to operationalise the level of co-creation activities on brand innovation results by establishing their perceived effect. This last part of the survey aimed at determining age, gender, and frequency of usage of digital media. It was important in determining the characteristics of the sample and in partly avoiding the problem of confounding variables in the analysis.

Validation of Instrument

To ensure the validity and reliability of the questionnaire, several steps were undertaken to ensure the validity and reliability of the questionnaire, several steps were undertaken: This questionnaire was cleared by a team of specialists in the areas of consumer generated content and brand development. These were then used in consultation with the participants to correct the items so that they retrieved the specified construct. This process established the content validity of the instrument as the intended measure of the variables. In order to analyse the internal structure of the scales that were included in the questionnaire, exploratory factor analysis (EFA) was carried out. Thus, the outcomes showed according to the theoretical predictions that the items were grouped into their respective factors, bearing evidence on construct validity of the scales. This analysis also supported that items were well placed within the factors to the extent that the constructs intended to measure was expected. Reliability as for

the internal consistency of the scales, reliability coefficients of Cronbach's alpha estimates were provided. Cronbach's alpha coefficients for all the scales used ranged from 0.80. This showed that the items within each of the scale were accurately measuring the same unique construct internal consistency.

Data Analysis

Tabular analysis using mean standard deviations and frequency distribution of responses were conducted to analyze the demographic characteristics of the sample besides describing the responses on the research question. This gave an initial impression of the data and motivated trends and patterns of the research. Therefore, Pearson correlation coefficients were computed to test the nature of the various co-creation activities and innovation outcomes. Its quantification enabled identification of the nature and magnitude of these relationships to inform the manner in which extent to which multiple co-creation activities were linked to those brand innovation dimensions identified in this study. To analyze the results, the method of multiple regression analysis was used to check the significance of different types of co-creation activities regarding different dimensions of brand innovation.

This technique made it possible to assess the significance of the different form of co-creation activity after partialing out other factors. Generally, the regression analysis offered a broader understanding of inputs, activities and, especially, outputs of co-creation concerning innovation. In order to compare the innovation outcomes by the use of different digital platforms and various forms of co-creation activities, analysis of variance (ANOVA) and analysis of covariance (ANCOVA) were employed. While, ANOVA was used to see whether there were significant differences between the groups, thus ANCOVA on the other hand controlled for possible confounding variables such as the demographic characteristics and the overall level of engagement thus making it easy to analyse the effects of co creation activities. Independent samples t-tests were also used to compare the results of innovation outcomes between employees involved in co-creation activities and employees who were not involved in such activities. This analysis meant that gap assessment was conducted to establish whether there were significant differences depending on the degree of engagement hence further understanding of the impact of co-creation.

Results and Discussion

Table 1 shows that the idea generation had a mean score of 3.87 with a standard deviation 1.12. This means that participants conduct idea generation activities at a moderate frequency and with inter-individual differences.

Table 1. Descriptive Statistics for Co-Creation Activities

Co-Creation Activity	Mean	Standard Deviation	Minimum	Maximum
Idea Generation	3.87	1.12	1	5
Feedback Provision	4.02	1.09	1	5
Collaborative Design	3.45	1.21	1	5

Feedback provision was a little higher with a mean of 4.02 and a standard deviation of 1.09. Lessons learned, feedback received, and feedback given suggests that participants are getting into feedback receiving and providing much more than idea generation. In the survey, Collaborative Design had the least mean of 3.45 and the lowest standard deviation of 0.35 as well as the highest standard deviation of 1.21, this indicated that collaborative design activities was less frequent and had greater variability amongst the participants.

Table 2. Descriptive Statistics for Innovation Outcomes

Innovation Outcome	Mean	Standard Deviation	Minimum	Maximum
Novelty	5.24	1.05	2	7
Market Relevance	4.89	1.12	1	7
Commercial Success	4.75	1.08	1	7

Table 2 shows that novelty has no significant differences between men and women showing that participants stated that the innovation from co-creations are quite novel to them and their responses are fairly homogeneous. Market Relevance received a mean of 4.89 and with a Standard Deviation of 1.12, this indicates that although innovations tend to be seen as being related to the market, there is a somewhat higher level of variation in this than for novelty. Commercial Success received the lowest mean of 4 among all the types of film awards. Seven-five years with a standard deviation of one of which it can be inferred that while there is slightly positive perception towards commercial success of innovations, the competitive success of the innovations varies among the participants.

Table 3. Descriptive Statistics for Demographic Information

Demographic Variable	Mean	Standard Deviation	Minimum	Maximum
Age	29.4	8.35	18	65
Level of Engagement	8.6	3.45	1	20

Table 3 shows that the participants age varied from 18 to 65 years, the average age was 29.4 years. An average standard deviation of 8.35. This shows that the employed sample is comparatively young and heterogeneous in terms of age. The mean in the Level of Engagement in digital platforms was 8. Of them, 6 hours a week with a standard deviation of 3.45 which indicates that there is moderate usage of the participants with digital platforms but with large discrepancies.

Table 4. Correlation Analysis Between Co-Creation Activities and Innovation Outcomes

Co-Creation Activity	Novelty (r)	Market Relevance (r)	Commercial Success (r)
Idea Generation	0.45**	0.39**	0.41**
Feedback Provision	0.52**	0.48**	0.46**
Collaborative Design	0.38**	0.33**	0.35**

Idea Generation showed moderate positive correlations with all three innovation outcomes. Since it reflects hazard, it was moderately correlated with perceived novelty ($r = 0.45$), market relevance ($r = 0.39$), and commercial success ($r = 0.41$). This means that enhanced participation leads to a higher rate of perceived innovation in the intervention. Feedback Provision was more correlated with novelty ($r = 0.52$) and market relevance ($r = 0.48$) and commercial success ($r = 0.46$) than other activities and thus it is seen that feedback provision has a higher effect on innovation outcomes. Collaborative Design showed moderate positive association with all innovation results, but was again less strongly associated than feedback provision. This implies a positive though but slightly weaker effect of collaborative design on innovation results.

Note: ** $p < 0.01$ indicates statistical significance.

Table 5. Multiple Regression Analysis of Co-Creation Activities on Innovation Outcomes

Innovation Outcome	Predictor	Beta	t-Value	p-Value
Novelty	Idea Generation	0.30	6.45	0.001
	Feedback Provision	0.35	7.20	0.00
	Collaborative Design	0.22	4.80	0.00
Market Relevance	Idea Generation	0.25	5.78	0.001

Commercial Success	Feedback Provision	0.28	6.10	0.001
	Collaborative Design	0.18	4.20	0.001
	Idea Generation	0.28	5.90	0.001
	Feedback Provision	0.30	6.50	0.001
	Collaborative Design	0.20	4.60	0.001

Table 5 shows that the idea generation had a strong positive correlation to all the three results of innovation where the strongest impact was seen in terms of novelty (Beta = 0.30) and market relevance (Beta = 0.25). This suggests that idea generation is one of the ways that determine perceived innovation. Feedback provision was the most significant predictor of all the outcomes; novelty (beta = 0.35) and commercial success (Beta = 0.30) in particular, thus proving a marked influence on innovation. Collaborative Design was also found to have a positive effect on the innovation outcome measures, albeit a significantly weaker effect than on the idea generation and feedback provision.

Table 6. ANOVA for Differences in Innovation Outcomes Across Digital Platforms

Digital Platform	Innovation Outcome	Mean	F-Value	p-Value
Media Social	Novelty	5.30	6.45	0.00
	Market Relevance	5.05	5.80	0.001
	Commercial Success	4.85	4.95	0.001
Online Forums	Novelty	5.00		
	Market Relevance	4.80		
	Commercial Success	4.70		
Collaborative Tools	Novelty	4.90		
	Market Relevance	4.70		
	Commercial Success	4.60		

Table 6 shows that the analysis of variance yielded main effects for perceived novelty of innovations across the various digital platforms, $F(2,105) = 6.45$, $p < 0.01$. Means were higher for social media than for online forums and collaborative tools. In the aspect of market relevance, the mean score that was obtained was the highest with a 5.05 indicating that companies consider the innovations conducted on social media as being more relevant than those conducted on the other media platforms. However, the difference that was noted here was not very large, the mean score for social network innovations was still the highest among the platform types, which means that this type of innovation is seen as somewhat more commercially successful on this platform.

Table 7. ANCOVA for Innovation Outcomes Controlling for Demographic Variables

Innovation Outcome	Predictor	F-Value	p-Value
Novelty	Co-Creation Activity	7.20	0.001
	Age	1.45	0.23
	Engagement	3.20	0.07
Market Relevance	Co-Creation Activity	6.80	0.00
	Age	1.55	0.21
	Engagement	2.85	0.09
Commercial Success	Co-Creation Activity	7.10	0.00
	Age	1.30	0.25
	Engagement	3.00	0.08

Table 7 shows that co-creation significantly affects all the measures of innovation ($p < 0.01$), even when demographic factors are taken into consideration. This shows how somewhat stronger than the influence of TT activities is the influence of co-creation ones on innovation

outcomes. The two independent variables, age and engagement level did not give any statistical significance for any of the results indicating that age and engagement level do not have any impact on the link between co-creation activities and innovation outcomes.

Table 8. T-Test for Differences in Innovation Outcomes Based on High vs. Low Engagement

Engagement Level	Innovation Outcome	Mean	t-Value	p-Value
High Engagement	Novelty	5.20	4.50	0.00
	Market Relevance	4.95	4.25	0.00
	Commercial Success	4.85	3.80	0.00
Low Engagement	Novelty	4.80		
	Market Relevance	4.60		
	Commercial Success	4.45		

Table 8 shows that the specifically for novelty, $t = 4.50$, and for market relevance, $t = 4.25$, and for commercial success $t = 3.80$ it was found that those participants who were highly engaged in co-creation activities scores were significantly higher than those who had low cocreation engagement scores. This suggest that, there is positive relationship between evaluation of innovation outcome and engagement in co-create activities.

The concern of the present study was the experience of consumer co-creation on brand innovation in digital contexts. Applying metrics survey, the results of the quantitative research show the correlations of the examined co-creation activities with different aspects of brand innovation. This will place our findings in the current empirical literature, establish their relevance, and present a comparison of our studies with those done previously to establish the gaps they pointed out.

The Effect of Co-Creation Activities on Innovation Results

This paper's results also show the significance of consumer co-creation activities for positive innovation results. In this respect, feedback provision was identified as the most important co-creation activity that affected novelty, market relevance and commercial success with strong positive correlation coefficients (Tables 4 and 5). This supports the argument that feedback from consumers is very vital in increasing innovation, as has been suggested by other authors that indicate that the use of insights from users is important in implementing innovation initiatives (Hoyer et al., 2010; Füller et al., 2011). Besides, feedback provision does not only focus on the better match between innovations and the market need but also contributes to the better success rate of new products, which point has also been reinforced under the classification of co-creation process aspect.

In the case of idea generation there was also a significant influence in the innovation outcomes, though slightly behind that observed when providing feedback. This finding supports prior research done on innovation process which underscores the role of idea generation (Nambisan & Baron, 2010). But the current study is valuable to the literature by establishing that idea generation or idea creating activity is indeed a major component that makes a lot of difference in co-creation activities by quantifying the amount of difference that it makes to innovation as compared to other co-creation activities.

Self-organised collaboration was significantly associated with innovation outcomes, but its impact was nevertheless slightly smaller than that of feedback and idea generation (Table 4). This is in contrast to some of the works that indicate collaborative design as highly effective co-creation method (Sanders & Stappers, 2008; Jones, 2018; Grindell et al., 2022). The weaker outcome in the current study may suggest that what was observed in prior studies is contingent

on specific forms or types of design collaboration or on the specifics of such digital media employed by the participants, and hence require further investigation.

Effects of the Digital Platforms and Levels of Engagement

The findings made available through the analysis of the ANOVA pointed out that there was significant variation in the innovation results in the various digital platforms (see Table 6). It was also found that the channels associated with higher perceptions regarding novelty, market orientation and commercial appeal were social media platforms. This finding is in congruence with past studies that consider social media as a strong milieu for nurturing innovations owing to coverage and more importantly interactivity (Scaringella & Radziwon, 2018; Kaplan & Haenlein, 2010). The higher scores for social media in this study are consistent with the literature about the virtues of social media for real time feedback and idea generation (Bhimani et al., 2019; Kapoor et al., 2018; Kozinets et al., 2010).

More specifically, the use of online forums or collaborative tools seems to exhibit lower innovation outcomes, this is probably because users of such systems are not challenged to co-create value in the same manner as other innovative solutions, or because such systems do not readily support creative endeavours. This comparison with social media underlines the role of the platform choice in co-creation strategies and extends the existing knowledge of platforms' effects on innovation through the empirical results.

APPENDIX L table 8 shows that the mean test for the t-test results, presented the difference in co-creation innovation performance for high and low engaged participants to be highly significant with a 0.00 p value. This goes with the theory of scope that reveals that the more engagement the client has, the more likely the innovations will be successful (Harmeling et al., 2017; Prahalad & Ramaswamy, 2004). This study builds on the above established literature by providing empirical evidence in support of the claim that engagement levels are key in determining the perceived success of innovations, thus support theoretical recommendations calling on firms to facilitate high consumer engagement in co-creation activities.

Functional Improvements as to Existing Flaws in the Literature

In the light of the discussion, the study manages to forward response to some critical issues missing in the consumer co-creation and brand innovation streams of literature. Firstly, whereas prior literature has established the effects of separate co-creation activities on innovation, the present research looks at numerous co-creation activities in terms of their effectiveness within a single context and framework. On the contrary, this reflects on the methodologies of previous work wherein most of the time co creation activities were viewed separately (for examples von Hippel 2005, Boudreau & Lakhani 2009).

Secondly, exploring the impact of various digital platforms and varying engagement, this research narrowed down the gaps in recognizing the context factors affecting co-creation outcomes. The outcomes revealed that both the choice of platform and the level of user interactions can have a positive influence on the level of innovation, which is not often discussed in prior research works (Yang & Han, 2021; Brettel et al., 2012; Gloor et al., 2013).

Finally, the research makes a theoretical contribution to the literature by presenting the results of a comparison of the effectiveness of the co-creation activities and their results in relation to different aspects of innovation process. This is especially the case since much of the published work in this area has demonstrated somewhat mixed results of the various co-creation activities (Fuchs & Schreier, 2011; Hu & Hsu, 2010). The study's findings are therefore more interpretable concerning which particular co-creation activities hold most value and give directions to apply in perfecting co-creation for innovating practices.

Conclusion

This research has outlined copiously on how consumer co-creation affects the development of brands in the various digital platforms and the efficiency of the different co-creation activities that could be employed. It has been further ascertained that the provision of feedback is the most effective activity in relation to perceived newness, market orientation, and commercial appeal of innovations. This puts some light on one of the most important aspects of consumer feedback when it comes to the identification of where innovations need to be taken and their success. The idea generation also contributes significantly, although the role described is not as significant as feedback provision's, which underlines the idea's significance in the innovation process. Overall, the findings indicate that collaborative design is related with more positive innovation outcomes although with less intensity than labor integration indicating that the extent and forms of collaboration could influence the contribution of this construct on innovation. Besides, the research revealed that digital platforms and levels of engagement are also critical determinants of innovation results; particularly social media platform offered the best innovation outcome and the levels of engagements that are perceived had a positivist relation with better innovation perception. Such insights are rather scarce in the literature and, therefore, the paper contributes to the field by (a) comparing the characteristics and impacts of different types of co-creation activities and (b) emphasizing the role of platform choice and user engagement. All in all, this research offers practical insights into the context of co-creation and innovation management, indicating research directions and possible areas and platforms of further investigation of co-creation dynamics.

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