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Crowdfunding Strategies for 3D Printing

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A R T I C L E   I N F O

A B S T R A K

Crowdfunding adalah cara inovatif bagi perusahaan rintisan untuk mengumpulkan dana yang mereka butuhkan untuk meluncurkanatau mengembangkan bisnis mereka. Dengan meminta pendanaan dari orang banyak, startup dapat meraup berbagai manfaat tambahan di luar perolehan dana. Kebaruan dari penelitian ini adalah berfokus pada proyek 3D Printing di platform crowdfunding, dengan mempertimbangkan data masa lalu backers dan nilai pendanaan yang diharapkan dapat digunakan untuk bisnis startup, khususnya proyek 3D printing sebagai strategi untuk meningkatkan investasi pendanaan di platform crowdfunding. Penelitian ini dilakukan untuk menganalisis strategi crowdfunding yang dapat digunakan oleh pemilik proyek dan menstimulasi para backer untuk berinvestasi sebagai strategi untuk meningkatkan investasi crowdfunding. Penelitian ini secara unik berfokus pada sebuah proyek pencetakan 3D di platform crowdfunding, menganalisis data backer dan nilai pendanaan sebelumnya untuk mengembangkan strategi peningkatan investasi pada proyek serupa.

A B S T R A C T

Crowdfunding is an innovative way for startups to raise the funds they need to launch or grow their businesses. By turning to the crowd for funding, startups can reap a variety of additional benefits beyond the acquisition of funds. The novelty of this research is that it focuses on a 3D Printing project on the crowdfunding platform, considering the past data of backers and funding value which is expected to be used for startup business, especially 3D printing projects as a strategy to increase funding investment on crowdfunding platform. This research was conducted to analyze the crowdfunding strategies that can be used by the project owner and to stimulate investment backers as a strategy to increase crowdfunding investment. This research uniquely focuses on a 3D printing project on a crowdfunding platform, analyzing past backer data and funding values to develop strategies for increasing investment in similar projects.

1. INTRODUCTION

Securing funds is a crucial yet daunting task for startups, with a plethora of capital options available to modern entrepreneurs. Crowdfunding emerges as a novel market paradigm, enabling the pooling of funds from a large online community to support projects or businesses (Bal, 2018). This approach has surged in popularity in recent years, offering a generalized financing process and bridging gaps where traditional funding avenues may falter (Melati, 2023; Amri, 2022). By 2023, the global crowdfunding market had already exceeded $1.4 billion, with projections indicating a doubling by 2030.

Crowdfunding distinguishes itself through its adaptability and accessibility, allowing entrepreneurs to garner support from a diverse pool of backers or investors. Beyond mere financial backing, crowdfunding facilitates crucial market validation, fosters early supporter communities, and

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serves as an engaging platform for potential customers, early adopters, and investors alike. Four distinct crowdfunding models exist: reward-based, equity-based, debt-based, and donation-based.

Kickstarter, a prominent crowdfunding platform, has hosted over 610,000 projects as of January 2024. It operates within a financial ecosystem encompassing reward-based, equity, P2P lending, donation-based, and fixed-income models. Notably, Kickstarter's reward-based approach attracts startups and individuals seeking to realize creative projects by engaging millions of global contributors in fundraising endeavors (Kickstarter, 2024). Success in reward-based crowdfunding often hinges on achieving pledged fund targets, serving as a testament for potential investors (Pasmawati et al., 2018). Forecasts suggest crowdfunding transactions could reach $7.7 billion by 2024 (Kickstarter, 2024).

This research delves into the characteristics, advantages, and drawbacks of various crowdfunding types, particularly on the Kickstarter platform, concerning 3D printing startups or projects. Understanding these modalities is pivotal in gauging whether crowdfunding aligns with the financing strategy for your venture.

Article Type

Qualitative research is based on post-positivism philosophy, because useful for research on natural objects, (as opposed to experiments) researchers contributed key instruments, sampling, sources data was carried out purposively and snowball, collecting techniques using triangulation (combination), inductive/qualitative data analysis, and results Qualitative research emphasizes meaning rather than generalizations (Sugiyono, 2011: 299). Because the main goal in qualitative research is to create facts/phenomena so that they are easy to understand (understandable) and possible ccording to the model can produce new hypotheses (Hennink, Hutter & Bailey, 2020; Sarmanu, 2017).

2. METHOD

Data was sourced from Kickstarter.com, chosen for its role as a crowdfunding platform aiding creative startup projects in securing early-stage funding during product development. Additionally, Kickstarter possesses unique attributes distinguishing it from other crowdfunding platforms. Projects are deemed successful if they achieve ≥100% funding, while those failing to reach this threshold are considered unsuccessful. The focus of the research is on 3D printing projects with a minimum of 5000 backers and limited to projects initiated since 2020. The selection process identifies the top six projects based on these criteria. Notably, technology products represent a significant portion of campaigns in terms of quantity, with the second-highest rate of unsuccessful funding on Kickstarter. The research dataset comprises data from nine projects on Kickstarter.com, detailed in Table 1. This dataset is utilized for analyzing crowdfunding strategies, incorporating both textual features, such as backer benefits, and numerical features, including the total pledged value.

Table 1. Procesed data

Startup / Project	reward crowdfunding	equity crowdfunding	debt crowdfunding	donation crowdfunding	total backers	current value funding
AnkerMake M5 3D Printer	√				11313	$ 8,881,095.00
Creality CR-6 SE&MAX 3D Printer	√				10401	$ 4,342,725.00
Snapmaker 2.0 3D Printer	√				7388	$ 8,159,461.00
Obsidian 3D Printer	√				6034	$ 1,792,711.35
Bambu Lab X1 3D Printer	√				5575	$ 12,798,231.00
ELEGOO Jupiter 3D Printer	√			√	5118	$ 5,015,152.96

Startups have access to four primary types of crowdfunding, each tailored to specific needs and offering distinct advantages:

a. Reward-based crowdfunding: In this model, backers contribute funds to the startup in exchange for a "reward," typically a product or service offered by the company. It's commonly utilized by startups launching new products or services, seeking funding for development or production.

Reward-based crowdfunding is especially popular for creative projects or product launches, providing valuable market interest assessment without relinquishing ownership in the company.

b. Equity-based crowdfunding: Here, backers receive shares of the company in exchange for their investment. This method is favored by startups with high growth potential, enabling them to raise substantial amounts of capital in exchange for a stake in future profits. Unlike reward-based crowdfunding, where the relationship often ends after delivery, equity crowdfunding fosters long-term investor relationships, offering expertise, experience, and networks beneficial for early-stage companies.

c. Debt-based crowdfunding: Also known as "peer-to-peer lending" or "P2P lending," this model mirrors a traditional loan, with the startup borrowing from a crowd of investors. Repayment, with interest, occurs over a specified period, without surrendering ownership. Debt-based crowdfunding can offer a faster process and less stringent qualification requirements than traditional banks, with a fixed repayment schedule providing predictability compared to equity investments. It may also be a more cost-effective finance option.

d. Donation-based crowdfunding: Commonly utilized by nonprofits, social entrepreneurs, and startups focusing on social or community benefits, this model doesn't promise financial returns. Backers donate funds driven by belief in the cause rather than financial gain. Donation-based crowdfunding is particularly effective for projects with social, charitable, or community focuses, fostering emotional investment from supporters and building a dedicated community around the project or cause.
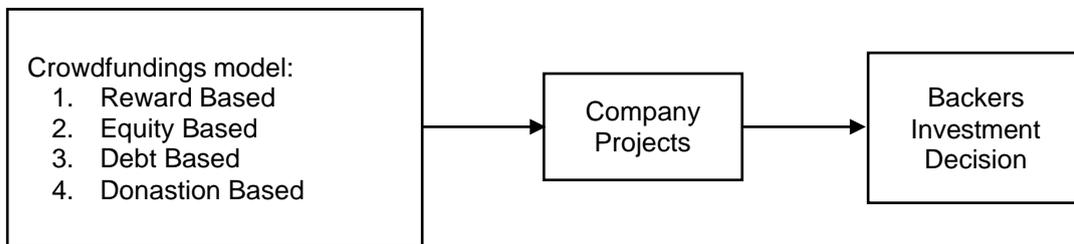

Fugure1. Research Model

3. RESULT AND DISCUSSION

In the realm of startup ventures and 3D printer projects, the prevailing choice is to embrace the reward-based crowdfunding model. Within this framework, backers extend their financial support in anticipation of receiving a "reward," typically encompassing various products, services, or other perks offered by the company or the project (Amri, 2019; Amri, 2020; Amri, 2022). Reminiscing on past endeavors, the AnkerMake M5 3D Printer project embarked on its journey in November 2022, unveiling a price spectrum ranging from $429 to $2299. In exchange, backers were granted the opportunity to acquire 1 to 5 units of the AnkerMake M5 3D Printer, coupled with supplementary rewards like complimentary filament, toolboxes, quick start guides, and a one-year warranty. Solely reliant on reward-based crowdfunding, this endeavor captivated the interest of 11313 backers, culminating in a successful funding amount of $8.881.095.

Similarly, the Creality CR-6 SE&MAX 3D Printer venture set sail in August 2020, presenting price brackets spanning from $263 to $6180. Backers were enticed with the prospect of owning 1 to 20 units of the Creality CR-6 SE 3D Printer, or 1 to 10 units of the Creality CR-6 MAX 3D Printer, contingent upon the chosen price tier. Echoing the AnkerMake M5 initiative, this project exclusively harnessed the power of reward-based crowdfunding, attracting 10401 backers and securing a funding sum of $4.342.725.

Meanwhile, the Snapmaker 2.0 3D Printer initiative embarked on its voyage in June 2023, unveiling a price spectrum spanning from $599 to $1079. Backers were lured in with a comprehensive bundle comprising 11 items, inclusive of diverse modules, a touchscreen interface, a heated bed, software solutions, and filament supplies. Focused solely on reward-based crowdfunding, this endeavor captured the attention of 7388 backers, successfully accumulating $8.159.461 in funding.

Venturing back to December 2020, the Obsidian 3D Printer project unveiled price ranges from $49 to $249. Backers were presented with the choice of acquiring the Obsidian 3D Printer as a standalone item or opting for a package encompassing 6 items, featuring various accessories and

filament provisions. Despite its budget-friendly nature, this project relied exclusively on reward-based crowdfunding, enticing 6034 backers and achieving a funding total of $1.792.711.

Shifting focus to the Bambu Lab X1 3D Printer endeavor, which commenced in September 2020, a price range of $702 to $6021 was unveiled. Backers were afforded the opportunity to procure the Bambu Lab X1 alongside 250g of Bambu PLA Filament, or alternatively opt for a package comprising additional items. Despite garnering the attention of fewer backers, totaling 5575, this project achieved a remarkable funding sum of $12.789.231 through reward-based crowdfunding exclusively.

Finally, the ELEGOO Jupiter 3D Printer initiative commenced its journey in June 2022, presenting a price range spanning from $5 to $1400. Backers were provided with the option to partake in the community or receive a package incorporating the 3D printer along with associated accessories. This project adopted a hybrid approach, incorporating both reward-based and donation-based crowdfunding mechanisms, with the aim of expanding its community and future prospects. With the support of 5118 backers, it successfully amassed a funding sum of $5.015.153.

4. CONCLUSION

Selecting the appropriate crowdfunding avenue hinges on factors such as your business model, objectives, and your readiness to meet the requisites of each platform. It's pivotal to align your choice with these criteria. For instance, if you're introducing a novel product or service, reward-based crowdfunding could be optimal. Conversely, if your business emphasizes social or community impact, donation-based crowdfunding might be preferable. Scaling an already established venture while being open to relinquishing equity could steer you towards equity-based crowdfunding. Alternatively, if maintaining full ownership while confidently repaying a loan is your aim, debt-based crowdfunding may be the route to take. Capital generation varies across crowdfunding methods; equity or debt-based avenues might be more suitable for substantial funds, while reward or donation-based platforms could suffice for smaller amounts. This approach proves effective in the context of 3D printing advancement.

5. ACKNOWLEDGE

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