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The Micro Crowdfunding Campaign: How M3D Raised $3.4 Million through Kickstarter to Develop an Affordable 3D Printer

Case

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Abstract

In April 2014, M3D launched a crowdfunding campaign on Kickstarter to raise money for a new prototype domestic 3D printer called “The Micro.” The campaign proved a huge success, breaking a string of crowdfunding records and raising more than US$3,400,000 in the space of 30 days. This case study provides an in-depth look at the factors behind this success. Beginning with a discussion of how The Micro 3D Printer first came into existence, it then moves on to explore the reasons why the M3D team opted to use a crowdfunding platform such as Kickstarter to fund their start-up project, as well as outlining the extensive preparation that went into producing The Micro 3D's hugely successful online funding campaign.

Case

Learning Outcomes

This case study aims to get students thinking about:

- the sorts of skills and attributes that are needed to launch a successful start-up enterprise;
- the various challenges that aspiring entrepreneurs face with regard to getting funding for their projects;
- the pros and cons of the different funding options available to start-ups;
- the different sorts of social media and online communication tools that entrepreneurs and small businesses can use to promote their products.

Introduction

On Monday, 7 April 2014, the Kickstarter community was offered the chance to help fund the development of a new consumer-friendly three-dimensional (3D) printer called “The Micro,” which the makers claimed would help revolutionize the industry by making 3D printing accessible to all. The response was astonishing. Within the first 11 minutes, more than US$50,000 had been raised; over the next 25 hours, a further US$1 million poured in. By the time the company's 30-day funding campaign was over, a staggering US$3,401,361 had been raised—more than enough to enable the M3D team to start producing The Micro on a commercial basis.

How was the M3D team able to raise so much money so quickly for their start-up project? This case study aims to provide answers to this question by tracing out the history of The Micro 3D Printer story, beginning with the development of the product itself and finishing with the efforts that went into orchestrating the hugely successful 2014 Kickstarter funding campaign. Among the key issues that it will look at are why the M3D team opted to go down the crowdfunding route to fund their start-up project and how they sought to utilize the capabilities of the Internet and social media to promote their product.

Background

The Founders

The key developers behind The Micro 3D Printer were two Maryland-based entrepreneurs called Michael Armani and David Jones, who had first become friends while completing their studies at the Maryland Technology Enterprise Institute during the early 2000s. After graduating, the pair then spent the next decade working together (and independently) on a variety of start-up technology projects, including the development of a new passive solar heating system and the launching of a new Internet-based advertising service for use in waiting rooms and convenience stores.

In skills and education, both entrepreneurs can be described as coming from technical backgrounds. Armani, who describes himself as a "motivator, energizer, think-out-of-the-box-er, maker, and philosophic," has a B.S. in Mechanical Engineering and a PhD in Bioengineering; Jones, who styles himself as a "pragmatic scientist," has a B.S. in Computer Science and is an expert at designing advanced computer software and artificial intelligence systems.

The 3D Printing Market

Although both Armani and Jones had a long-standing interest in developing affordable automation technology for various applications, it was not until 2012 that they really began to start getting interested in 3D printing technology (see Box 1 for a full definition).

Box 1. 3D printing.

In common usage, 3D printing refers to any process by which a three-dimensional object is created (or "printed") from a digital file. The most common method by which this is achieved is through a process known as *additive manufacturing,* in which objects are created through the laying-down of successive levels of material (plastic, metal, etc.).

In terms of timing, Armani and Jones's entry into the world of 3D printing could not have come at a better moment. After years of obscurity—the basic technology behind additive manufacturing had actually been around since the early 1980s—both the press and the wider public were finally beginning to become interested in the potential of 3D printing. Advancements in the technology itself also helped considerably in this respect, enabling proponents of additive manufacturing to showcase the potential of the technology in new and exciting ways (including in the production of functional metal components).

Nevertheless, despite this increased general interest, the market for 3D printing services remained predominantly geared toward the industrial sector at this time. Most 3D printers still tended to be large-scale industrial units, used primarily for the creation of complex mechanical parts and components or, alternatively, for the creation of detailed one-off prototype models. Open-source initiatives such as the RepRap Project and Fab@Home in the late 2000s did help to challenge this trend somewhat by opening up the 3D printing sector to hobbyists and do-it-yourself enthusiasts, but, by and large, the market remained one that was still fairly

inaccessible to the average consumer.

Armani and Jones were united in their belief that this gap in the market represented a significant commercial opportunity. As they saw it, 3D printing was a technology with huge mass-market potential that could (and should) be made available to everyone, not just those with an expertise in graphic design. Convinced that they were the persons best suited to delivering on this promise, the two aspiring entrepreneurs took the bold decision to quit their jobs and focus all their efforts on designing a truly consumer-friendly 3D printer, as Jones explains: “We realized that what we had could serve a huge need and create a turning point for the consumer 3D printer market—at which point we both had to drop everything else we were doing” (Fortune, 2014).

Designing the Micro 3D Printer

Design Process

After quitting their jobs, Armani and Jones next turned to the issue of putting together a team capable of delivering a 3D printer that would be both cheap to produce and easy to use. To achieve this goal, they decided to create as varied a design team as possible, hiring not only engineers and software technicians, but also artists and production experts—anyone, in fact, who they thought could help them achieve their goals. All of these workers were then housed in the same production facility and actively encouraged to communicate and debate their ideas with one another. This not only helped bond the design team, it also ensured that the maximum synergy was achieved between the different elements working on the design of the prototype 3D printer.

Throughout the entire design process for The Micro 3D Printer, Armani and Jones also went to great lengths to ensure that as little information as possible about their prototype printer was released to the public. Such secrecy was necessary for two main reasons. First, Armani and Jones knew that, for an innovative product such as theirs, being the first on the market was key; as such, they wanted to make sure that they were not providing any potentially useful information to their competitors. Second, by actively keeping what they were working on secret from the media, they hoped to ensure that, when their finished prototype was finally revealed, there would be sufficient excitement and “buzz” to guarantee widespread press coverage.

Product Features

In total, it took close to two years before the M3D team (as the company would subsequently become known) felt ready to share their work with the public. The first official airing of their new prototype 3D printer took place at the 3D Printshow New York in February 2014—a high-profile public event, packed full of technology journalists and 3D printing enthusiasts. This carefully orchestrated public unveiling had the desired effect and soon the Internet was awash with stories about Amani and Jones's new 3D printer.

From a technical perspective, the prototype printer that the M3D team finally produced was revolutionary in a number of ways:

1. It was the most space-efficient 3D printer ever made;
2. It had the lowest power-consumption of any 3D printer on the market;
3. It featured built-in auto-levelling and auto-calibration technology (meaning that users did not have to fiddle around with a lot of settings before printing);
4. It came in a range of bold colours and was both quick and easy to assemble (it had just one screw in its entire design);
5. It was open access, meaning that users could print using a range of different software programmes and filaments (not just those provided by M3D).

Thanks to innovations such as these, the M3D team were able to fulfil their original ambition of producing a new 3D printer that was both much cheaper to make and much easier to use than other models on the market.

Funding Options

Funding Challenges

Whilst Armani and Jones may have been in possession of a prototype design that they were happy with, they were still faced with the massive challenge of trying to find the funding necessary to translate their initial vision of a cheap and easy-to-use 3D printer into a commercially viable one. Turning to friends and family was not an option at this stage, as they had already provided much of the financial backing during the initial design phase. Trying to get a personal loan from a bank was similarly also out of the question, as the two friends had already racked up a sizeable amount of personal debt during the design process.

Confronted with such a challenge, the two aspiring entrepreneurs were left with two main options. On the one hand, they could have gone down the conventional route and turned to traditional funding sources, such as banks or venture capitalists, to try and raise the capital necessary to support their start-up venture (see Box 2). On the other hand, they could try and bypass these traditional funding lenders and turn instead to the rapidly expanding online crowdfunding market to secure the backing they required. In the end, the option that they both decided upon was the crowdfunding one.

Box 2. Traditional start-up funding sources.

***Bank Lending*:** Perhaps the most traditional source of funds for small business, banks have long provided overdraft and loan facilities to small businesses and start-up ventures. Most banks, however, do tend to have fairly strict lending policies, providing money only to those with good credit records and clear business plans.

***Venture Capitalists*:** Wealthy individuals and/or financial bodies that provide financial backing to small businesses and start-up firms with perceived long-term growth potential. In general, they tend to be more willing to invest in high-risk endeavors. However, in return for their investment, they do often ask for a say over how the enterprise is run.

***Angel Investors*:** A catch-all term to describe any individual who provides funding because they want to help the start-up business succeed, rather than reap a huge profit from their investment. Such investors typically have some form of close personal bond with the entrepreneur(s) they are funding. They are, in essence, the exact opposite of a venture capitalist.

Crowdfunding

Simply put, crowdfunding is an umbrella term used to describe any financing method in which (often) relatively modest contributions are obtained from a large number of investors. Although such a dispersed form of funding is not in itself especially novel, it has become increasingly popular since the turn of the century owing to the expansion of the Internet and the emergence of new social network sites. Indeed, in 2013 alone, it was estimated that approximately US$5.1 billion was raised worldwide through this form of financing.

From a practical perspective, the most common method for carrying out a crowdfunding campaign is through a dedicated online crowdfunding platform. These are essentially online communities that help facilitate the exchange of money, goods, or services between funders and fundraisers by bringing together large networks of like-minded individuals. In most cases, they also provide fundraisers with a variety of useful online tools for things such as campaign tracking, social media promotion, and the receiving of online payments.

Choosing the Right Platform

At the point that Armani and Jones were preparing to launch their prototype 3D printer, the range of different crowdfunding platforms in operation on the Internet was already fairly extensive. Working out which one of these different platforms would be the most likely to meet their funding needs and fulfil their commercial aspirations was obviously a key decision for the M3D team (see Box 3).

Box 3. Different crowdfunding models.

***Donation Funding*:** The raising of money for charitable or non-commercial projects or activities. This could include things such as sponsoring someone to run a marathon, paying for medical expenses, or supporting a conservation project. Notable platforms in this sub-group include RocketHub, JustGiving, and GoFundMe.

***Reward-Based Funding*:** The giving of financial support in return for some non-financial return. This can include such things as providing money to help develop a computer game in return for a free copy once it is made or funding a new film in return for tickets to the opening-night premiere. Notable platforms in this subgroup include Indeigogo, Kickstarter, and Sellaband.

***Equity Funding*:** The giving of financial support in return for shares in the enterprise, along with all the legal rights that this entails (e.g. the right to dividends, the right to sell the shares at a later date). Notable platforms in this subgroup include Grow VC, SeedUps, and Crowdcube.

***Straight Debt Funding*:** Sometimes referred to as "peer-to-peer lending," this is essentially just the linking of those looking to lend money with those looking to borrow money. As with a conventional loan, the lender typically receives a set amount of interest on the money they provide. Notable platforms in this subgroup include Lending Club, Funding Circle, and Zopa.

In the end, the platform that Armani and Jones decided to promote their prototype 3D printer on was Kickstarter. Launched in 2009, Kickstarter was (and still is) the largest and most famous reward-based crowdfunding platform on the Internet, with more than US$319 million worth of pledges in 2012 alone. Commercially, it was ideally suited to Armani and Jones's needs not only because it provided them with access to a huge potential market (at the time of writing, more than 7 million people have backed projects on the site), but also because it had a well-established reputation of providing significant financial backing to high-tech, innovative products like The Micro 3D Printer. In addition, it also allowed Armani and Jones to raise money for their printer without having to give up any equity in the company or relinquish any control over the direction that they wanted the project to take in the future.

The Crowdfunding Campaign

Marketing and Promotion

Once they had decided on Kickstarter as their crowdfunding platform of choice, the next thing that Armani and Jones had to do was to start preparing the promotional material for their online fund-raising campaign. To assist them in this task they enlisted the help of an outside visual communications agency called Mark Leisher Productions. Locally based and with an expertise in visual communications, they worked closely with the M3D design team over a number of months to produce a cinematic-quality promotional video showcasing The Micro 3D Printer's aesthetics and capabilities (see Video Links).

Also assisting Armani and Jones in promoting The Micro 3D Printer online was an award-winning creative PR consultancy called Dynamo, which not only helped secure widespread press coverage for the new printer but also worked closely with the M3D team over a number of weeks to help plan out the overall strategy and key funding goals for the group's Kickstarter campaign. This expert outside advice (Dynamo was the world's first PR firm to launch a specialist Kickstarter division) proved invaluable in terms of both raising the profile of the group's Kickstarter campaign and ensuring that their message reached their target audience.

Customer Involvement

In line with the reward-based strategy adopted by most other campaigns on Kickstarter, those keen to support the development of The Micro 3D Printer were not offered the option of purchasing equity in M3D but, rather, were given a range of pre-production purchasing choices. These not only included options to pre-order copies of The Micro 3D Printer at heavily discounted rates (US$199 for the first 250 backers, US$249 for the next 250 backers, etc.), but also exclusive one-off offers such as the chance to purchase a custom-coloured version (for US$2,000) or to meet the design team in person (for US$10,000).

In addition to these pre-production purchasing choices, backers of The Micro 3D Printer were also encouraged to provide comments and feedback on the design of the printer itself, either through face-to-face discussion at one of the many industry fairs that the M3D team attended or via various online forums. This feedback not only helped ensure that the final product really did meet customers' needs, it also encouraged backers to feel that they were part of a wider “community” helping to reshape the 3D printing market by providing support for a disruptive new technology.

Postscript

Since achieving (and massively surpassing) their initial funding goals, M3D have gone on to achieve numerous accolades and rewards, including being awarded the prize of “Best Business Newcomer” at the 2014 Printshow Global Awards in London. They have also managed to develop increasingly close links with the local authorities in Howard County and are now playing a leading role in a new drive to make Maryland a leading hub for 3D printing and additive manufacturing. Shipping of the first batch of Micro 3D Printers to customers began in August 2014.

Discussion Questions

1. Based on your reading of this the case study, what sorts of skills and attributes do you think are needed to become a successful start-up entrepreneur?
2. Do you think the crowdfunding route was the most suitable way for the M3D team to raise the necessary capital for The Micro 3D Printer?
3. Suggest some reasons why Armani and Jones might have chosen Kickstarter as their crowdfunding platform of choice.
4. Why do you think the M3D team decided to bring in outside help during their marketing campaign? What did these external groups contribute to the Micro 3D campaign?
5. How did the M3D team try to get their investors involved in the production process for the Micro 3D Printer?
6. In your opinion, why was The Micro 3D Printer crowdfunding campaign so successful?

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Video Links

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M3D—The Micro 3D Printer at the 2014 USA Science & Engineering Festival. Retrieved from https://www.youtube.com/watch?v=p4pTufreB4c
Official Kickstarter promotional video. Retrieved from https://www.kickstarter.com/projects/m3d/the-micro-the-first-truly-consumer-3d-printer

Useful Web Links

European Crowdfunding Association: http://www.europecrowdfunding.org/
National Crowdfunding Association (USA): http://www.nlcfa.org/main.html

UK Crowdfunding Association: http://www.ukcfa.org.uk/
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