

Kickstarter Projects Performance Analysis

The analysis of the dataset provided sought to answer three executive-level questions:

- What are the top project categories currently in Kickstarter?
 - The objective is not only to understand what is being successful but also what has the potential for growth.
- What Project Category carries the higher risk?
 - The objective is to identify the areas of high risk to initiate deeper analysis into success or failure factors.
- What key indicators could be used to predict whether a project will succeed or fail?
 - Building on the second objective, this is the first step into creating a predictive algorithm of success and failure for projects in all categories.

Each of these questions are answered from the perspective of Kickstarter – and not potential project managers or backers. Success breeds success. To the extent that Kickstarter can move metrics away from failure into success, the greater the chance that Kickstarter could attract larger volume of investors.

Top Project Categories in Kickstarter in terms of Volume of Projects Regardless of Outcome

The High End

Category	successful	failed	canceled	live	Grand Total
theater	839	493	37	24	1393
music	540	120	20	20	700
technology	209	213	178	0	600
film & video	300	180	40	0	520
publishing	80	127	30	0	237
games	80	140	0	0	220
photography	103	117	0	0	220
food	34	140	20	6	200
journalism	0	0	24	0	24
Grand Total	2185	1530	349	50	4114

This table depicts the number of projects per category. Using the pareto rule, four out of the twelve categories dominate close to 80% of the volume. They are:

- Theater Projects (33.86%)
- Music Projects (17.02%)
- Technology (14.58%)
- Film & Video (12.64%)

Despite the breakout of categories, there is one subcategory of projects that clearly dominate the Kickstarter space. Within the leading category (Theater) projects supporting **Theater Plays** account for more than a quarter (25.91%) of all projects spread over 41 subcategories.

With a much lower participation than Theater Plays but considered important to categorized as leading areas are:

Rock Music (6.32%), Wearable Technology (4.86%), Theater Spaces (4.55%), and Documentary Films (4.38%)

The Low End:

- There are 19 subcategories with less than 50 projects each combining to be 13.3% of the volume of projects.
- Journalism is the category with the least participation (0.58%).

Growth Tendencies

Descriptive statistic above help to frame the volume of projects in Kickstarter. However, it is perhaps more important to understand the growth rate (positive or negative) of each of the categories. The following table depicts the volume of projects based on categories across years 2012 and 2016.¹

Category	2009	2010	2011	2012	2013	2014	2015	2016	2017	Total
theater		3	4	8	11	403	518	391	55	1393
music	7	30	89	159	118	102	99	68	28	700
technology	1	3	5	15	29	131	205	190	21	600
film & video	4	21	48	55	53	110	139	80	10	520
publishing	2	3	18	32	40	44	55	40	3	237
games		4	7	13	23	55	43	61	14	220
photography		1				61	81	65	12	220
food						64	77	46	13	200
journalism						6	8	9	1	24
Total	14	65	171	282	274	976	1225	950	157	4114

Key Takeaways:

- Overall, Kickstarter had experienced consistent growth in the number of projects until 2016 where it experienced a 22% drop in projects. The only categories with growth in 2016 were Games and Journalism. All other categories experienced a slowdown in their volume as follows:
 - Film/Video (-42%)
 - Food (-40%)
 - Music (-31%)
 - Publishing (-27%)
 - Theater (-25%)
 - Photography (-20%)
 - Technology (-7%)

Further analysis is needed to identify what subcategories contribute more to the slowdown in projects. Given the importance of the Theater category, priority ought to be given to ensure recovery in this area.

¹ For this longitudinal analysis, five-years of data was found to be the most appropriate to draw any meaningful conclusions. It is important to note that the last year of data, 2017, was not taken into account for its apparent incompleteness.

Categories That Carry the Biggest Risk to the Investors (Backers)?

While Kickstarter is not directly responsible for the return on investment of any project, it is important for its brand to promote projects with a strong chance of success. The more success investors (backers) find funding projects on Kickstarter, the greater the volume of participation which lead to greater revenue and profit.

This analysis is based on the complete dataset and it seeks to identify the project category with the greatest risk.

Risk will be defined as the probability that a project will fail. The following table depicts the % of projects per category across their final state:

Category	successful	failed	canceled	live	Grand Total
theater	60%	35%	3%	2%	100%
music	77%	17%	3%	3%	100%
film & video	58%	35%	8%	0%	100%
technology	35%	36%	30%	0%	100%
photography	47%	53%	0%	0%	100%
games	36%	64%	0%	0%	100%
publishing	34%	54%	13%	0%	100%
food	17%	70%	10%	3%	100%
journalism	0%	0%	100%	0%	100%
Grand Total	53.11%	37.19%	8.48%	1.22%	100.00%

Key Takeaways:

Three categories perform successfully over 50% of the cases:

- Theater, Music, and Film & Video
- The most successful category is Music

Four categories have a failure rate over 50%. They are:

- Photography, Games, Publishing, and Food
- The worst performing categories with the greatest failure rate are Food and Games.

- Technology is a category with about equal chance of failure, cancellation, or success.

Analysis into the subcategories is necessary to further identify winners and losing propositions based on the topic of each project.

Number of Backers Analysis

The following tables contain the descriptive statistical analysis of the number of backers (investors) for failed and successful projects:

Successful Projects Descriptive Statistical Analysis		Failed Projects Descriptive Statistical Analysis	
# Backers		# Backers	
Max:	26457	Max:	1293
Median:	62	Median:	4
Mean:	194	Mean:	18
Min:	1	Min:	0
Variance:	713167.4	Variance:	3775.7
Std Deviation:	844.3	Std Deviation:	61.4
# Projects:	2185	# Projects:	1530

There is a strong positive correlation between the number of backers and the success rate of projects.

The hypothesis would be that the attractiveness of the project as an investment for backers is a proportional reflection of the attractiveness of the product to its target market.

However, the number of backers per project has an extremely wide distribution as indicated by the standard deviation. The following

distribution frequency table better depicts this wide range of values:

Successful Projects		Failed Projects	
# Backers	# Projects	# Backers	# Projects
1-1000	2,122	0-99	1,475
1001-2000	39	100-199	37
2001-3000	9	200-299	7
3001-4000	6	300-399	6
4001-5000	4	400-499	1
5001-6000	1	500-599	1
8001-9000	2	800-899	1
20001-21000	1	900-999	1
26001-27000	1	1200-1299	1
Grand Total	2,185	Grand Total	1,530

Examination of the frequency distribution reveals that the number of projects with more than 1000 backers is negligible compared to the number of projects with 1000 or fewer backers.

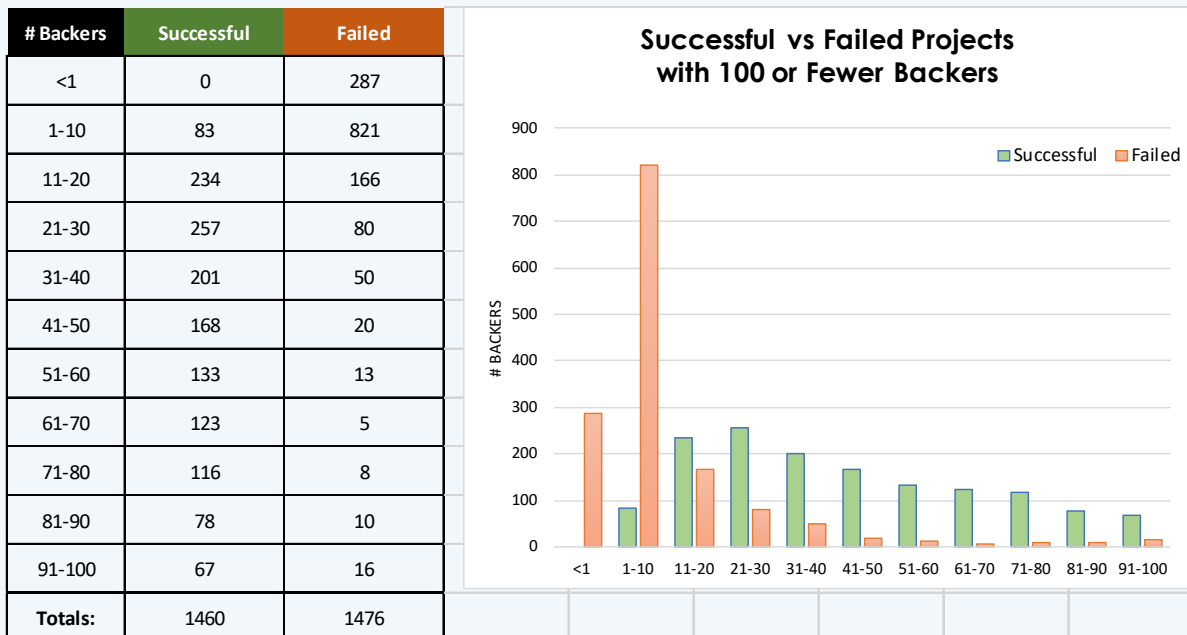
97% of successful projects have less than 1001 backers.

Similarly, the number of projects with more than 100 backers is also negligible compared to projects with fewer than 100 backers.

96% of failed projects have less than 100 backers.

Taking into consideration the frequency distribution, the hypothesis of a strong positive correlation between number of backers and the success rate of a project in Kickstarter is validated.

An interesting comparative analysis can be done with projects with 100 or fewer backers of successful and failed projects. 66% of Successful Projects and 96% of Failed Projects fall in this scenario. The following tables and charts depict the statistical distribution of backers in the two scenarios:



From this analysis it is easily seen that successful projects have a much normal distribution when it comes to the number of backers than failed projects.

Two Major Risk Factors:

When it comes to risk profiling, the choice of the category and subcategory to invest and the number of backers per project are the two main factors driving risk for any investor. The challenge remains: is it possible to predict if a project will fail?

Building a Predictive Model of Success or Failure for Kickstarter Projects

Four factors captured in the dataset could be used to build a predictive model of success or failure. They are:



The analytics goal would be to find the weight of each of these factors with respect to each other to create the algorithm.

Three factors have been evaluated herein and determined to have large correlations to success or failure of a project. These factors are:

- The Theme of the project (Category)
- The Goal Amount to be Raised
- The Number of Backers (Investment Attractiveness)
- The Date of Initiation

Dataset Concerns

The dataset provided is sufficient to create the initial model. However, there are some limitations in the dataset that impact not only the predictive model but the overall conclusions above. The primary limitation is the size of the dataset compared to the actual amount of projects in Kickstarter.

The lack of clarity between what constitutes a failed project versus a canceled project is also a concern. It is not also clear what defines a successful project. Is it the fact that the money raised equal or surpassed the goal? Or is it that the project delivered a successful (profit bearing) product to the market?

This analysis was excellent in promoting deep probing of the sample dataset from the statistical perspective. With more time, additional analysis from the business and enterprising perspective could be beneficial to complete a rounder analysis of Kickstarter.