

It's never too late: funding dynamics and pre-sales in crowdfunding

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Entrepreneurs need funding for their endeavours. How to get it?

- banks (interest)
- venture capital (equity)
- angel investors (equity – closer relation)

⇒...and recently: crowdfunding

- direct relationship between a mass of (small) funders and the entrepreneur
- individual action, but funding takes place as 'crowd'
- returns to the funder: equity *or* interest *or* product *or* service *or* thank you...
- usually mediated by an online platform

Crowdfunding: definition and origin

“Crowdfunding involves an open call, mostly through the Internet, for the provision of financial resources either in form of donation or in exchange for the future product or some form of reward and/or voting rights.” – Belleflamme et al., 2014

- Originated in creative industries (music, movies)
- Adopted by entrepreneurs from a wide range of backgrounds
- Artists looking for funds for their creative work, social projects looking for support, business ventures, real estate...
- ...niche markets, local endeavours, space exploration...

Crowdfunding platforms

KICKSTARTER



Investissez dans l'économie réelle

www.wiseed.com



Some projects

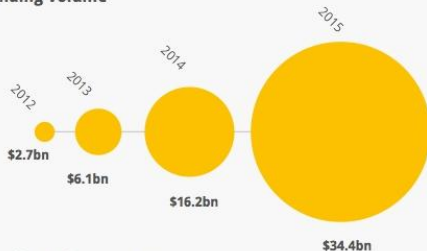


Crowdfunding brings interactions known from other environments to the entrepreneurial finance context

- Distinction between following forms (Hemer, 2011)
 - Crowd lending (see: banks)
 - Crowd equity (see: venture capital)
 - Crowd donations (see: voluntary contributions)
 - Crowd pre-selling (see: pre-selling)

Exponential growth

Total Funding Volume



Total Funding Volume: 2015

\$34.44bn



source: Massolutions

Crowdfunding: success stories

- Musician Amanda Palmer
 - Asked for \$100,000 for a new music record (April 2012)
 - Overall, she collected \$1,192,793 from 24,883 individuals
 - Funding threshold of \$100,000 was reached within six hours
- Smartwatch Pebble
 - Customizable smartwatch for iPhone and Android
 - Kickstarter project to get funding for its production was launched on April 11, 2012 with a goal of \$100,000
 - In total, 68,929 users pledged \$10,266,845
- Solar-powered aircraft SolarImpulse
 - Supporters can donate in return for team badges, adopted solar cells, or acknowledgement of the donor on the plane

Crowdfunding: horror stories

- Most projects fail (up to 60%)
 - and the majority does not make it off the ground
- Zano Nano Drone
 - Got 2.3 mln dollars on Kickstarter
 - Got hugely delayed to be shipped to backers
 - when shipped, did not really work as advertised
 - company filed for bankruptcy – not clear what a backer can get.
- Coolest cooler
 - Second most funded campaign on kickstarter ever: asked 100k, got 15mln.
 - price was off – making losses on each pre-sold Cooler
 - need to sell it to others than the backers to have money to satisfy pre-orders
 - rage: backers do not have it while no-backers can...

Key questions in the literature

- What determines project success?
 - project characteristics
 - location
 - project management
- What motivates individuals to pledge?
 - intrinsic/extrinsic motivations
 - selfishness/altruism
 - peer effects
- How do pledges develop during a project's funding duration?
 - path-dependence
 - peer effects
 - predictions

Usually answered with crawled data at the project level



Our contribution: individual-level data from Startnext

About Startnext

- Biggest crowdfunding platform in Germany
 - Launched in October 2010
 - February 2014: funding volume of €10,000,000; 1139 successful projects
260,000 registered users
 - Today: €31,495,148, 3,759 successful projects, 689,000 registered users
- Crowd donations and pre-selling (from 2013: crowd investing)
- Project owners choose a funding duration (10 to 90 days)
- In order to enter the funding phase projects have to reach a minimum level of fan support
- Threshold pledge model

Startnext: example of a project page

rest Relaxation Drink
Harris Halkic



Start Blog 10 Wall 15 Supports

7,172 € of 10,000 € funded

151 Fans 53 Supporters 30 days

rest Relaxation Drink

Unser rest Relaxation Drink bei Startnext
from rest drink

03:06 HD vimeo

♥ Become a fan | f t x g+ Embed

Support now

You selected 0.00 €

Rewards

Select one or more rewards and / or enter a free amount.

☐ 0.00 €
Free amount
Enter a free amount.

5.00 €
Persönliches Dankeschön aus Berlin
4 of 100 booked

6.00 €
rest Glas
4 booked

Startnext: data set

- Data set consists of all projects and all pledges made at Startnext since its launch in October 2010 until February 10th, 2014
- Total of 2,711 projects
 - 459 registered at Startnext but failed to enter funding phase
 - 2,252 projects that made it to the funding phase
 - Out of those, 1,139 (or 51%) were successfully funded
- Overall, 102,405 pledges, made by 77,201 different users
 - Highest number of pledges by the same user is 109
 - Average number of pledges made per user is 1.32
 - Project with the most pledges received 3,126
 - On average, projects got 45.47 pledges

Startnext: project variables

Funding duration: Duration of the project's funding phase

Target amount: Amount project owners seek to raise

Recommended: Has project been recommended (1) by Startnext or not (0)?

Word count: Length of a project's description in words

Video count: Number of videos that users can view on a project's page or its blog

Image count: Number of pictures on a project's page or its blog

Blog entries: Number of entries on a project's blog

Categories: Set of dummy variables that indicate whether the project belongs to one of the 17 categories at Startnext (movie/video, music, event, theater, literature, art, photography, invention, journalism, design, cultural education, community, fashion, technology, games, audio drama and comic)

Startnext: pledge variables

Available information for each pledge:

Pledger: Anonymized ID of the person making the pledge

Date and time: Moment when the pledge was submitted

Amount: Amount pledged, subdivided by pledge-level chosen

IsDonation: Dummy variable that indicates if the pledge was a pure donation - i.e., without prizes, products, or services in return

IsPreSelling: Dummy variable that indicates if the pledge (or part of it) was a pre-sale

⇒ Allows us to identify projects and users in the data set

Startnext: descriptive stats (1)

- Average project is described by a half-page text
- Features one video and 7 images
- Most popular project categories are movies (31.6%), music (25%), event (11.6%) and cultural education (11.1%)

variable	mean	st. dev.	min	median	max
project success	.506	.5	0	1	1
funding duration	58.02	24.87	5	57	90
target amount	5,700.19	11,304	100	3,000	290,000
recommended	.083	.276	0	0	1
word count	764.95	415.17	79	678	9,950
video count	1.09	2.31	0	0	27
image count	7.58	9.44	0	6	346
blog entries	3.97	4.59	0	3	50

Startnext: descriptive stats (2)

- Majority of pledges (83%) is pre-selling
- About 19% of all pledges are donations
- About 2.5% of all pledges are both a donation and a pre-sale

variable	mean	st. dev.	min	median	max
Pledge amount	60.87	241.25	0.1	25	25,000
IsDonation	.19	.39	0	0	1
IsPreSelling	.83	.37	0	1	1
Pledges per project	45.47	123.37	1	19	3,126
Pledges per user	1.32	1.28	1	1	109

Three main analyses

1 Project success determinants

- probit regression
- project-level data
- replication of results from Kickstarter

2 Reward level analysis [new!]

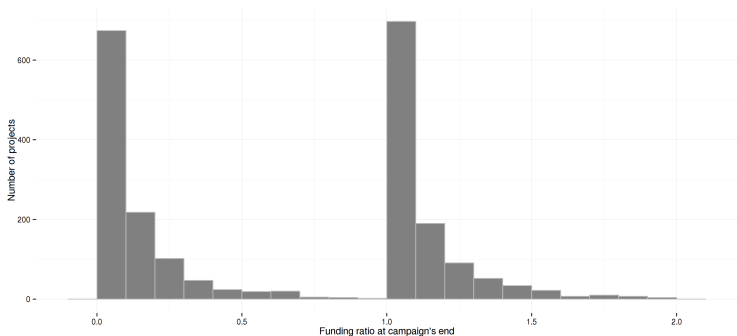
- probit regression
- crawled project-level data on the reward levels offered
- subset ($\sim 10\%$) of projects

3 Funding dynamics [new results!]

- pledge-level data
- panel fixed-effects
- determinants of path-dependence (or not)

Success determinants 1: final funding levels

Ratio: cumulative pledges reached to targeted amount



- Projects tend to fail by large amounts and succeed by relatively small margins
- Same for Kickstarter (Mollick, 2014)

Success determinants 2: probit regressions

	I: starting phase		II: funding phase	
	coeff.	st.error	coeff.	st.error
Target amount	-.00003	.00001 **	-.0003	.00002 ***
Funding duration	—	—	-.0074	.0014 ***
Word count	.0002	.0001 **	.0001	.0001
Video	.3325	.0469 ***	.0539	.0167 ***
Image	.1038	.0104 ***	.0047	.0027 *
Blog entries	—	—	.0733	.0088 ***
Total fans	—	—	.0231	.0014 ***
Recommended	—	—	1.2	.2285 ***
Category dummies	yes		yes	
constant	.0229	.0896	-.6457	.118 ***
Pseudo R^2	0.17		0.33	
N	2,711		2,252	

significance levels: * * * = 1%, ** = 5%, * = 10%

Success determinants 2: probit regressions

- Positive correlation
 - Communication
 - Word count (only starting phase)
 - Number of videos, images
 - Blog updates (1 sd change \Rightarrow chance of success by 30%)
 - Total number of fans of a project
 - Being recommended by Startnext
- Negative correlation
 - Target amount
 - Funding duration

Reward levels 1: the categories

Pledgers obtain different things moved by various motivations

W.r.t. the type of pledge:

- thank-you
- product
- service
- invitation
- clothing

W.r.t. the type of psychological impact

- self-image
- social-image
- both

Reward levels 2: the sample

- Reward-level data not provided by Startnext
- Need to crawl the site to get the data
- Time-intensive to code by hand the rewards

Analysis on a subset of 260 ($\sim 10\%$) of projects

- random draw
- within the universe of projects making it to the funding phase

Reward levels 3: results - supply-side vs. demand-side

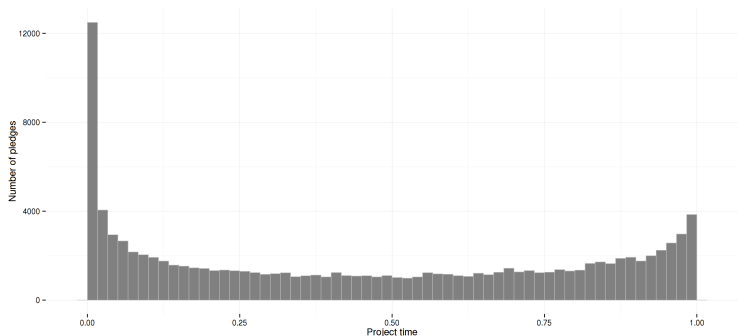
Positive correlation with success

- Social-image
- Product pre-sale
- Clothing (social-image, again)
- Invitation to an event (self-image?) (supply only)

Negative correlation with success

- Services (supply only)

Distribution of pledges over the normalized funding duration

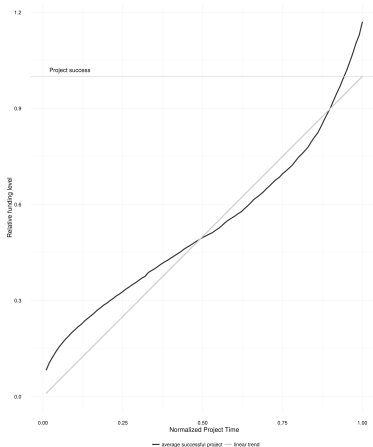


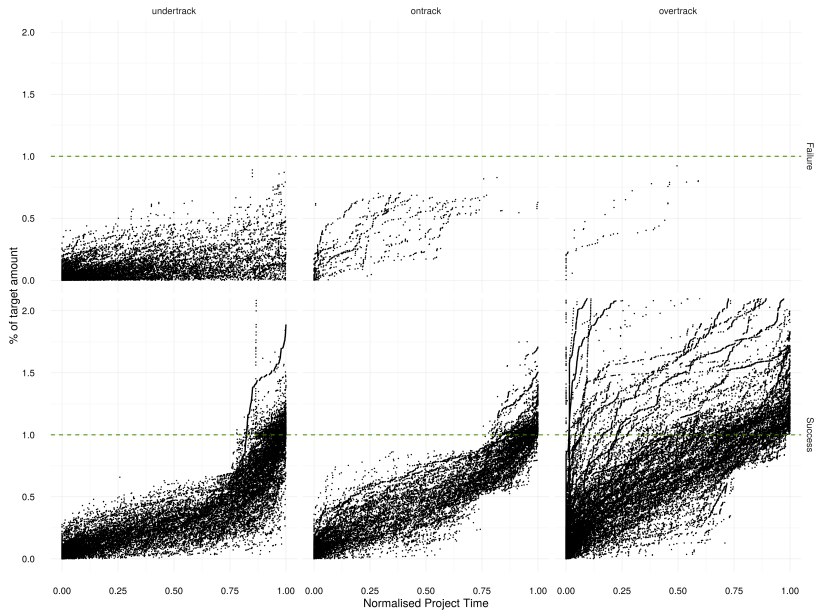
- Quarter of all pledges made within first 10% of duration
- Noticeably more pledges are made towards the end

Dynamics: are you on-track?

We define a data-driven dynamic path to success

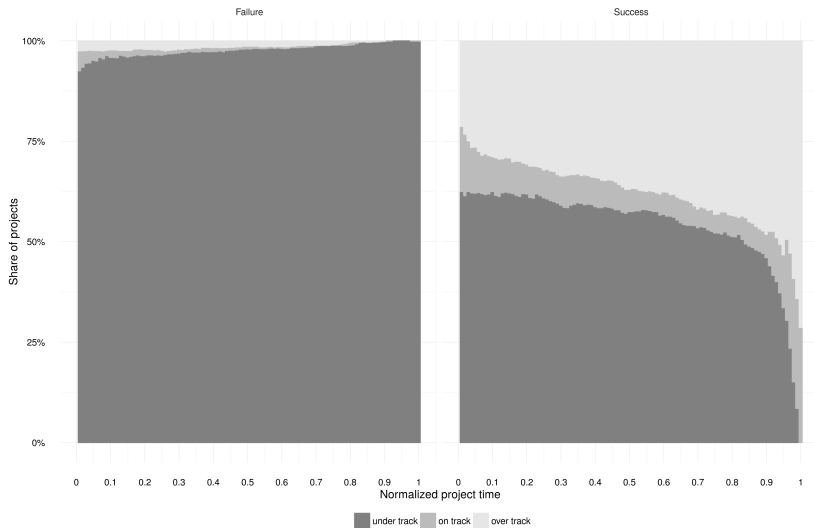
- Average funding ratio at each time t for all successful projects





Funding patterns

- Rockets start on very high trajectories
 - Some reach their funding target extremely early
 - Pledges tend to become less over time resulting in 'logarithmic' trajectories
- Projects categorized as on track
 - Are on 'linear'-like trajectories
 - Only very few of them do not follow through and fail to reach target
 - Vast majority continues their promising path
- Projects categorized as not on track
 - Late bloomers start slow but get an eventual boost of pledges
 - For some projects boost comes very late and when they are still far away from the funding target
 - This pronounced boost towards the end results in 'exponential' trajectories

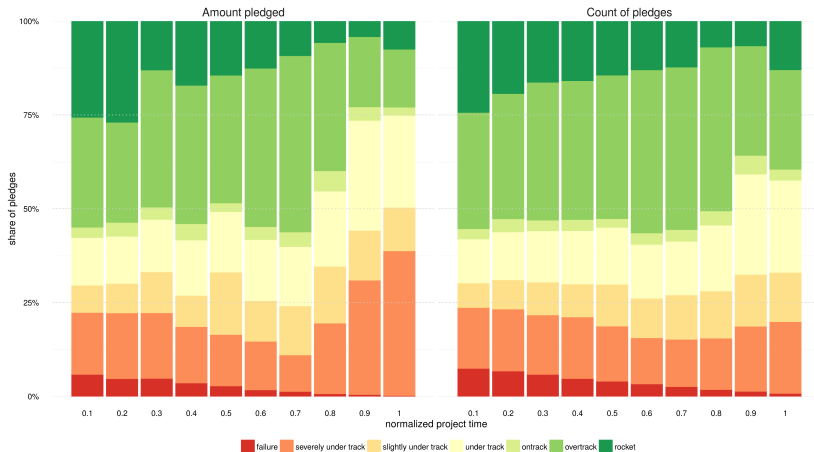


Dynamic project categorization

	Failure	Success	Total	% Success
Failed	670	–	670	–
Severely under track ($> 30\%$)	387	251	638	39.3%
Under track (10 – 30%)	38	245	283	86.6%
Slightly under track ($< 10\%$)	9	131	140	93.5%
On track	5	39	44	88.6%
Over track	2	380	382	99.5%
Rocket	–	95	95	–
Total	1111	1141	2252	50.7%

Table : Performance with respect to data-driven track at 75% of project time and final outcome of the project.

Last-minute surge: crowd or angels?

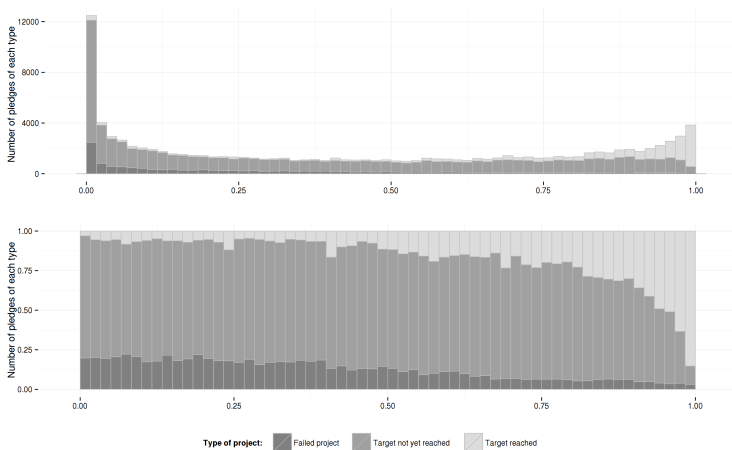


Last-minute surge: crowd or angels?

		Normalized Project Time									
		0.1	0.2	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1
Failed	Mean €	35.29	38.34	44.1	39.65	35.96	29.7	35.32	26.58	29.27	27.59
	N/project	2.93	0.98	0.68	0.48	0.4	0.33	0.28	0.21	0.21	0.19
Severely under track	Mean €	45.65	58.01	59.41	48.17	48.65	59.37	53.72	92.06	134.66	177.05
	N/project	6.67	2.51	1.92	1.73	1.53	1.27	1.43	1.66	2.75	4.65
Slightly under track	Mean €	49.77	54.93	67.13	49.84	77.62	57.84	77.02	80.69	73.6	77.43
	N/project	12.24	5.4	4.82	4.22	5.3	4.97	6.1	6.95	9.98	14.54
Under track	Mean €	48.72	53.88	55.04	54.7	55.35	63.89	76.96	76.53	84.03	87.71
	N/project	10.86	4.37	3.72	3.38	3.57	3.35	3.65	4.81	9.57	13.46
On track	Mean €	45.09	57.8	61.86	77.6	51.57	63.71	87.19	95.99	55.68	65.04
	N/project	16.3	7.7	5	4.52	3.52	4.57	5.11	6.66	11.48	10.3
Over track	Mean €	42.42	43.76	53.57	52.5	46.37	54.72	75.53	52.39	49.09	51.13
	N/project	21.27	8.47	7.42	6.52	6.66	7.52	8.2	8.85	7.73	10.76
Rockets	Mean €	47.27	76.35	43.05	56.74	52.2	54.48	52.31	55.43	48.12	50.64
	N/project	67.11	19.67	13.2	11.23	10.06	9.01	9.31	5.62	7	21.12

Startnext: pledges over time, by type

Pledges to unsuccessful projects, to projects already funded, to projects still below their target amount:



Startnext: analysis of pledges

- Deadline effect
 - No increase in pledges to yet unfunded projects
 - Spike of pledges due to projects that already made it
 - During last 10% of project time about 60% of pledges made actually go to projects that already reached their target
- 18.7% of pledges made when funding target already met
 - 16% of the pledges are donations and 86.5% are pre-selling
 - In comparison to before, donations become less frequent, pre-selling becomes more frequent
 - Tendency that crowdfunders purchase products/services from projects that already secured funding

Summary and conclusions

- Crowdfunding experienced exponential growth recently
 - An alternative to traditional financiers of entrepreneurs?
- Analysis of individual-level data from Startnext
 - Quality indicators of a project's communication with its potential funders are success determinants
 - Project success is only partially path-dependent
 - Seems it's never too late to kickstart a campaign
 - Substantial amount (18.7%) of pledges is made to projects that already reached their funding target
 - Pre-selling is instrumental for crowdfunding success

Thank you!