European Commission

Assessing the potential for crowdfunding and other forms of alternative finance to support research and innovation

Final Report - Annexes

EY Building a better working world
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POLITECNICO DI MILANO
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January – 2017

Research and Innovation

EUROPEAN COMMISSION

Directorate-General for Research and Innovation
Directorate B — Open Innovation and Open Science
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Final Report - Annexes

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Open Evidence

Politecnico di Milano

European Crowdfunding Network

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Directorate-General for Research and Innovation
Access to Risk Finance

EUROPEAN COMMISSION

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ANNEX 1 CLASSIFICATION OF QUESTIONS BY OBJECTIVE AND THEME

Objective	Theme	Questions
Role of AF for R&I	Size	A1 How much funding is raised annually for R&I via AF or other forms of alternative finance in Europe as a whole and per country? Is there a growing trend? How many R&I ventures are funded (including campaigns, personal and business loans, equity investment deals, etc.)? A7 What are the characteristics and business models of platforms focused specifically on R&I (both inside and outside Europe)? Is the number of such platforms increasing?
	Uptake	A2 To what extent are entrepreneurs with innovative and/or research-based ideas drawn to AF or other forms of alternative finance? Why? A5 To what extent do SMEs and midcaps undertaking R&I use AF? To what extent do such firms prefer AF over traditional methods of finance? A6 To what extent have AF platforms been used by individual innovators or groups of researchers or scientists? At what stage of the R&I cycle do they use AF to raise finance? A11 To what extent are universities and research centres using AF to attract funding for innovative ideas, and what is the demand? A8 What is the total number of investors (including investors, backers, donors and lenders) involved in R&I supported via AF? Is this number growing? A16 To what extent are institutional investors already active in the crowdsourcing of R&I? A9 To what extent are individuals interested in funding the development of R&I in Europe and why? What would encourage them to invest in R&I via AF? Is this connected to the development of the concept of the 'sharing economy'?
	Type	A3 In analysing R&I projects on AF platforms, what is the breakdown by R&I and application sector? A4 In bankability or investment-readiness terms, what is the riskiness of the projects concerned? A12 To what extent is 'enterprise' crowdfunding successful in fostering internal research and innovation for companies? Are any trends evident? A18 What are the criteria typically used by investors active in AF when deciding to back an R&I project or a firm or individual undertaking R&I? AF platforms and their development A20 On what basis do AF platforms select R&I projects? A21 How do crowdlending platforms active in R&I assess and classify the risk profile of borrowers? A22 What types of AF or other forms of alternative finance are most appropriate for successfully funding R&I and in what circumstances (i.e. location of AF platform, R&I sector, R&I stage, objective in firm life-cycle,

		amount of funding requested, size and scope of project)? A26 Looking at AF-sourced R&I funding, to what extent is the financing environment domestically oriented? In other words, what are the estimated cross-border transaction percentages (out of total funding) in terms of both inflow funds (i.e., investor funding coming from outside a platform's home country) and outflow funds (i.e., investor funding leaving the platform's home country)? A27 Do AF platforms raising funds for R&I tend to concentrate on specific technology or application sectors? Are they inclined to address additional sectors in order to grow?
	Dynamics	A7 What are the characteristics and business models of platforms focused specifically on R&I (both inside and outside Europe)? Is the number of such platforms increasing? A13 Besides AF, what other types of alternative finance, if any, are proving useful for R&I-performing firms accessing finance? A19 AF platforms and their development A22 What types of AF or other forms of alternative finance are most appropriate for successfully funding R&I and in what circumstances (i.e. location of AF platform, R&I sector, R&I stage, objective in firm life-cycle, amount of funding requested, size and scope of project)? A28 To what extent do AF platforms raising funds for R&I tend to integrate different alternative financing methods under one operating platform?
Bottlenecks and drivers	Demand	A10 What makes a AF campaign for an R&I project or firm undertaking R&I successful? How could the EU support this? A17 From a fundraiser's point of view, what are the entry barriers to listing on a platform? For example, with regard to a project's communication campaign (including boosting project writing, presentation and video skills), business plan preparation, campaign support, outreach or any other promotional mechanisms. D8 Have there been problems in acquiring or protecting IPRs in R&I projects funded via AF? If so, how could they be overcome? D9 To what extent is the transparency of AF platform operations (including information about the identities of operators and backers, contact details, etc.) an issue in encouraging fundraisers and investors to use AF as an alternative source of finance generally and to support R&I specifically?
	Supply	b2 To what extent do crowdlending platforms, especially those focused on R&I, insure lenders against the risk of default by borrowers? d2 Specifically, what impediments are there towards cross-border AF platform operations in support of R&I? How could these be addressed? To what extent is the MiFID31 helpful in assisting AF platforms to operate cross-border? d3 What differences between the legal regimes of the Member States make it difficult for funders (including investors, backers, donors and lenders) of AF and other forms of alternative finance to operate cross-

		border? Are there other factors? d9 To what extent is the transparency of AF platform operations (including information about the identities of operators and backers, contact details, etc.) an issue in encouraging fundraisers and investors to use AF as an alternative source of finance generally and to support R&I specifically?
	Platform	A23 Why are R&I-focused AF platforms developing in some countries more than in others? Are their particular characteristics of their mode of operation that might account for this? A24 What is impeding the development of R&I focused AF platforms in some countries? A14 What is the market failure or deficiency, if any, that would justify EU public aid measures for AF? Is there any data on this? B2 To what extent do crowdlending platforms, especially those focused on R&I, insure lenders against the risk of default by borrowers? B7 Are there particular provisions of a) the Financial Regulation or its Rules of Application and b) the legal base of Horizon 202030 that might slow the development of potential EU or national support for AF platforms and/or projects funded via the platforms and other forms of alternative finance in support of R&I? A25 To what extent do AF platforms based in one country and raising funds for R&I see potential in developing cross-border operations? What are the main barriers to the development of cross- border AF? If so, how could they be addressed? D2 Specifically, what impediments are there towards cross-border AF platform operations in support of R&I? How could these be addressed? To what extent is the MiFID helpful in assisting AF platforms to operate cross-border? D4 Besides issues, if any, with respect to regulatory regimes, what other impediments are there to cross-border operations for AF platforms focused in R&I specifically and for AF generally? D5 What are the views of national regulators on AF and other forms of alternative finance for R&I? E1 To what extent are platforms dealing with R&I aware of any relevant EU cross-border regulations? How does the level of awareness correlate with platforms' cross-border expansion objectives?
	Ecosyste m	C1 To what extent are there links between AF platforms supporting R&I and: public funds? accelerators, incubators and clusters? business angels? venture capitalists? more traditional financial players, such as banks and other non-bank lenders? family offices and philanthropic foundations? C3 Looking at accelerators and incubators in particular, to what extent are they playing a role in channelling alternative finance to companies and individuals undertaking R&I? A29 What trends in FinTech are likely to affect the field of AF and alternative finance in support of R&I, and how?
Policy Recomm	Supply	A14 What is the market failure or deficiency, if any, that would justify

endations		EU public aid measures for AF? Is there any data on this? A15 Are there any EU Member States that have in the past or are currently giving support with state aid to AF? If so, in what form? B1 Is there a role for the Commission to incentivise AF (platforms, investors, project initiators) to support and attract R&I projects? If yes, how could this best be done? 24 For scope, see http://en.wikipedia.org/wiki/Financial_technology 13 B3 To what extent could an EU-backed capped or uncapped guarantee encourage crowdlending platforms to lend to higher-risk borrowers, in particular those undertaking R&I25? What could the term-sheet for such a financial instrument look like? B4 Looking at equity-based crowdfunding for R&I, what is the potential for the EU to act as an investor26 and/or co-investor27? What could the term-sheet for such a financial instrument look like? B5 Hypothetically, and with the aim of encouraging AF in support of R&I, what selection criteria28 could be used when assessing AF platforms for possible EU support? B6 In the same spirit, what monitoring and reporting requirements would be necessary to respect the stipulations of the Financial Regulation29? How might AF platforms react to such stipulations? C4 What is the potential for connecting projects seeking finance via Horizon 2020, COSME and other EU funding programmes with AF platforms funding R&I? What would be the benefits if the Commission uses a successful AF-based fund-raising campaign as a selection criterion (amongst others) for selecting project proposals for grant funding and/or for funding via financial instruments? Could this action be taken by the Commission? If so, how could adverse selection risks be minimised? D6 Are there any countries offering tax benefits for investors/donors/fundraisers using AF? Could a tax incentive be put in place for R&I projects on AF platforms? D7 What other incentives could the Commission provide in order to increase the appeal for investors/donators/fundraisers of R&I-focused AF platforms?
	Platform	A30 To what extent is there a need for a pan-European AF platform focused on R&I? How could such a platform work and what should its business model look like? Would there be a spin-off benefit in terms of fostering the public's interest in supporting science, research and innovation? D1 To what extent are current EU and national regulations fostering or hindering the development of AF and other forms of alternative finance, both domestically and cross-border, in support of R&I? How could regulatory regimes at both levels be improved? D2 Specifically, what impediments are there towards cross-border AF platform operations in support of R&I? How could these be addressed? To what extent is the MiFID31 helpful in assisting AF platforms to operate cross-border? D3 What differences between the legal regimes of the Member States make it difficult for funders (including investors, backers, donors and lenders) of AF and other forms of alternative finance to operate cross-

		border? Are there other factors? D4 Besides issues, if any, with respect to regulatory regimes, what other impediments are there to cross-border operations for AF platforms focused in R&I specifically and for AF generally? D10 Would it be helpful, in terms of fostering the use of AF in funding R&I, to develop a standardised way for platforms focused on R&I to report the progress and outcome of fundraising campaigns? Would scoreboards or other forms of benchmark be helpful to fundraisers and investors? E1 To what extent are platforms dealing with R&I aware of any relevant EU cross-border regulations? How does the level of awareness correlate with the cross-border expansion objectives of the platforms?
	Demand	E2 What type of promotional campaign could be taken to encourage the take-up of AF and other forms of alternative finance by SMEs and midcaps undertaking R&I? E3 What type of AF guidelines (including types of platforms, requirements and strategies) have proven to be useful for successful R&I fundraisers? E8 What could be done by the Commission to help improve the attractiveness of R&I projects to AF and alternative finance platforms?
	Ecosyste m	C1 To what extent are there links between AF platforms supporting R&I and: public funds? accelerators, incubators and clusters? business angels? venture capitalists? more traditional financial players, such as banks and other non-bank lenders? family offices and philanthropic foundations? Other sources of finance? C2 In each case: what are the characteristics of such links? To what extent, and how, should the European Commission encourage such links? C3 Looking at accelerators and incubators in particular, to what extent are they playing a role in channelling alternative finance to companies and individuals undertaking R&I?

ANNEX 2 LIST OF THE EUROPEAN PLATFORMS REGISTERED IN THE DATABASE

The preliminary desk research mapped over 550 crowdfunding platforms in Europe, US and China (including inactive AF platforms). The list was further reviewed and validated with AF platforms. Over the course of the study we have mapped 232 active European platforms with an R&I scope (generic with R&I spectrum or R&I-oriented platforms). This list represents a wide range of platforms of different AF models, areas of specialisation, geographical coverage. The database of platforms is available online on www.crowdfunidng4innovation.eu and could be further enriched beyond the timeline of the study.

#	Name	Country	Website	Foundation	Generic with R&I aspect or R&I-oriented	Main model
1	1000x1000	AT	www.1000x1000.at	2012	research and innovation oriented	Hybrid
2	1001PACT	FR	www.1001pact.com	2015	research and innovation oriented	Equity
3	AB Funding	FR	http://www.ab-funding.com	2014	generic	Equity
4	Abundance Generation	UK	www.abundanceinvestment.com	2012	research and innovation oriented	Lending
5	ADHD Fund	NL	www.adhdfund.com	2014	research and innovation oriented	Donation
6	Aescuvest	DE	https://www.aescuvest.de	2014	research and innovation oriented	Hybrid
7	Anaxago	FR	www.anaxago.com	2012	generic	Equity
8	Angel.me	BE	www.angel.me	2014	generic	Hybrid
9	Angels Den	UK	www.angelsden.com	2007	research and innovation oriented	Equity
10	Arboribus	ES	www.arboribus.com	2012	generic	Lending
11	Archover	UK	https://www.archover.com	2014	generic	Lending
12	Assetz	UK	www.assetz.co.uk/	2012	generic	Lending
13	Assiteca Crowd	IT	www.assitecacrowd.com	2014	research and innovation oriented	Equity
14	B-a-MedFounder	CY	www.bamedfounder.com	2013	research and innovation oriented	Hybrid
15	Bankless 24	DE	https://www.bank	2012	generic	Equity

			less24.de			
16	Beesfund	PL	www.beesfund.com	2012	generic	Equity
17	Bettervest	DE	www.bettervest.de	2012	research and innovation oriented	Equity
18	Big60Millions	UK	www.big60million.co.uk	2014	research and innovation oriented	Lending
19	Bitbond	DE	https://www.bitbond.com	2013	generic	Lending
20	Bolden	FR	https://bolden.fr	2014	generic	Lending
21	BolsaSocial	ES	https://www.bolsasocial.com	2013	research and innovation oriented	Equity
22	Booomerang	DK	https://www.boooomerang.dk	2011	generic	Reward
23	Bürgerzins	DE	www.buergerzins.de	2014	research and innovation oriented	Equity
24	C-crowd	CH	www.c-crowd.com	2011	research and innovation oriented	Equity
25	Capital Cell	ES	www.capitalcell.net	2014	research and innovation oriented	Equity
26	CEPPInvest	DE	http://www.cepp-invest.de	2015	research and innovation oriented	Equity
27	Clubfunding	FR	https://www.clubfunding.fr	?	generic	Equity
28	CoFunder	UK	https://www.cofunder.co.uk	2013	generic	Lending
29	Com-Unity.com	IT	www.com-unity.it	2013	generic	hybrid
30	Companisto	DE	www.companisto.de	2012	generic	Equity
31	Conda	AT	www.conda.at	2012	generic	Equity
32	Credit.fr	FR	www.credit.fr	2014	generic	Lending
33	Crestemidei	RO	www.crestemidei.ro	2012	generic	Reward
34	Croenergy.eu	HR	http://croenergy.eu/	2015	research and innovation oriented	Hybrid
35	Crowd for angels	UK	https://crowdforangels.com		generic	Hybrid
36	Crowd Patent	DE	www.crowdpatent.com	2013	research and innovation oriented	Equity

37	Crowdaboutnow	NL	www.crowdaboutnow.nl	2009	generic	hybrid
38	Crowdangels	PL	www.crowdangels.pl	2012	research and innovation oriented	Equity
39	CrowdBnk	UK	www.crowdbnk.org	2011	generic	Hybrid
40	Crowdcube	UK	www.crowdcube.com	2011	research and innovation oriented	hybrid
41	Crowdfooding	UK	www.crowdfooding.co	2014	research and innovation oriented	Equity
42	Crowdfunder	UK	www.crowdfunder.co.uk	2010	generic	Hybrid
43	Crowdfunding safari	ES	http://www.safaricrowdfunding.com	2014	research and innovation oriented	Hybrid
44	Crowdfunding voor natuur	NL	www.crowdfundingvoornatuur.nl		research and innovation oriented	Donation
45	CrowdFundMe	IT	www.crowdfundme.it	2013	research and innovation oriented	Equity
46	DaVinciCrowd	FR	www.davincicrowd.com	2013	research and innovation oriented	Donation
47	Derev	IT	www.derev.com	2013	generic	Reward
48	Design & Law	ES	http://designandlaw.com		research and innovation oriented	Hybrid
49	Deutsche Mikroinvest	DE	www.deutsche-mikroinvest.de	2012	generic	Hybrid
50	DigVentures	UK	http://digventures.com	2011	research and innovation oriented	Donation
51	Doneaza Cu Avon	RO	www.doneazacuavon.ro		research and innovation oriented	Donation
52	Doorgaan.nl	NL	https://www.doorgaan.nl		generic	Lending
53	Duurzaam Investeren	NL	www.duurzaaminvesteren.nl	2013	research and innovation oriented	Equity
54	Ecobole	FR	https://www.ecobole.eu	2013	research and innovation oriented	Hybrid
55	Ecomill	IT	http://www.ecomill.it	2014	research and innovation oriented	Equity
56	Econeers	DE	www.econeers.de	2013	research and innovation oriented	Equity
57	Ecrowd!	ES	www.ecrowdinvest.com	2015	research and innovation oriented	Lending

58	Emprendelandia	ES	www.emprendelandia.es	2012	generic	Lending
59	Enerfip	FR	https://enerfip.fr/	2015	research and innovation oriented	Equity
60	Eppela	IT	www.eppela.com	2011	generic	Reward
61	Equinvest	IT	www.equinvest.it/	2014	research and innovation oriented	Equity
62	Ethex	UK	www.ethex.org.uk	2012	research and innovation oriented	Hybrid
63	Ethik Angels	FR	www.ethik-angels.org	2012	generic	Donation
64	Finance Utile	FR	www.financeutile.com	2010	generic	Equity
65	Finanzarel	ES	http://www.finanzarel.com/		generic	Invoice trading
66	Finnest	AT	www.finnest.at	2015	generic	Lending
67	Fixura	FI	https://www.fixura.fi/	2014	generic	Lending
68	Fondatio	FR	www.fondatio.com	2012	generic	Equity
69	Fund It	IE	www.fundit.ie	2011	generic	Hybrid
70	FundedByMe	SE	www.fundedbyme.com	2010	generic	Hybrid
71	Funder nation	DE	https://www.fundernation.eu/	2014	generic	Equity
72	Funding Empire	UK	www.fundingempire.com	2012	generic	Lending
73	Funding Knight	UK	https://www.fundingknight.com/	2012	generic	Lending
74	Funding Tree	UK	https://www.fundingtree.co.uk/	2013	generic	Hybrid
75	Fundlike	ES	http://fundlike.com/	2013	generic	Reward
76	Fundsters	DE	www.fundsters.de	2012	generic	Equity
77	FutSci	UK	https://www.futsci.com/	2014	research and innovation oriented	Donation
78	Galantom	RO	www.galantom.ro		generic	Donation
79	Geldwerk1	DE	www.geldwerk1.de	2014	research and innovation oriented	Equity

80	Getyourcause	ES	www.getyourcause.com	2013	generic	Reward
81	Giromatch	DE	https://www.giromatch.com	2014	generic	Lending
82	Goteo	ES	www.goteo.org	2011	generic	Reward
83	Green Crowding	DE	www.greencrowding.com	2013	research and innovation oriented	Lending
84	Green Currency	NO	http://www.green-currency.com	2015	research and innovation oriented	Lending
85	Green Rocket	AT	https://www.greenrocket.com		research and innovation oriented	Equity
86	Greencrowd	NL	https://greencrowd.nl	2012	research and innovation oriented	Hybrid
87	Greenvesting	DE	www.greenvesting.com	2009	research and innovation oriented	Equity
88	greenXmoney	DE	www.greenxmoney.com	2014	research and innovation oriented	Lending
89	Groopio	EL	www.groopio.com	2012	generic	Reward
90	Growth Deck	UK	https://www.growthdeck.com/	2015	generic	Equity
91	GrowthFunders	UK	www.growthfunders.com	2012	generic	Equity
92	Gwenneg	FR	www.gwenneg.bzh	2015	generic	Hybrid
93	Hoolders	FR	https://hoolders.com	2012	research and innovation oriented	Equity
94	ILoveScience	ES	http://ilovescience.es	2013	research and innovation oriented	Hybrid
95	Innovestment GmbH	DE	www.innovestment.de	2011	research and innovation oriented	Equity
96	inverem	ES	www.inverem.es	2012	generic	Equity
97	Invesdor	FI	www.invesdor.com	2011	generic	Equity
98	Investbook	FR	https://www.investbook.fr/	2014	generic	Lending
99	Investiere	CH	www.investiere.com	2007	research and innovation oriented	Equity
100	Investing Zone	UK	www.investingzone.com	2013	research and innovation oriented	Equity
101	Investly	EE	https://investly.co	2013	generic	Invoice trading

			/et/esileht/			
102	JustGiving FKA YIMBY	UK	www.justgiving.com	2014	generic	Donation
103	Kaalisi	FR	www.kaalisi.fr	2012	research and innovation oriented	Equity
104	Kapilendo	DE	www.kapilendo.de	2014	generic	Lending
105	Kapitaal Opmaat	NL	https://www.kapitaalopmaat.nl/	2013	generic	Lending
106	Kiosk to invest	FR	www.kiosktoinvest.com	2014	generic	Equity
107	Kiss Kiss Bank Bank	FR	www.kisskissbankbank.com	2010	generic	Reward
108	kocoriko	FR	www.kocoriko.fr	2015	generic	Donation
109	lánzame	ES	www.lanzame.es	2012	generic	Equity
110	Leap Funder	NL	www.leapfunder.com	2012	research and innovation oriented	Equity
111	LeihdeinerUmweltGeld	DE	www.leihdeinerumweltgeld.de	2011	generic	Lending
112	Lend a hand	NL	https://www.lendahand.com/en/	2011	generic	Lending
113	Lendosphere	FR	www.lendosphere.com	2014	generic	Lending
114	letsfundit.mk	MK	www.letsfundit.mk	2013	generic	Reward
115	LightFin	DE	https://www.lightfin.de/	2013	generic	Equity
116	LoanBook capital	ES	https://www.loanbook.es/	2012	generic	Lending
117	Lumo	FR	www.lumo-France.com	2012	research and innovation oriented	Lending
118	Mezzany	DE	www.mezzany.com	2015	generic	Equity
119	microgenius	UK	http://www.microgenius.org.uk/	2011	generic	Equity
120	Microinversores	ES	http://micro-inversores.com/	2013	generic	Equity
121	Multifi nantare	RO	www.multifinantare.ro	2012	generic	Hybrid
122	MyMicroInvest	BE	www.mymicroinvest.com	2011	research and innovation oriented	Hybrid

123	MyNewStartup	FR	https://www.mynewstartup.com/	2013	generic	Hybrid
124	MyPharmaCompany	FR	https://mypharmacompany.com/en	2012	research and innovation oriented	Hybrid
125	MyProjects	UK	http://myprojects.cancerresearchuk.org/	2008	research and innovation oriented	Donation
126	Nakopni.Me	CZ	www.nakopni.me	2011	generic	Reward
127	Nestarter	ES	www.nestarter.com	2013	generic	Equity
128	Oneplanetcrowd	NL	www.oneplanetcrowd.nl	2012	generic	Hybrid
129	OurCrowd	IL	https://www.ourcrowd.com/	2012	research and innovation oriented	Hybrid
130	Partizipa	ES	www.partizipa.com	2007	generic	Equity
131	Pick&boost	FR	http://www.pickandboost.com/	2015	generic	hybrid
132	Polak Potrafi	PL	https://polakpotrafi.pl	2011	generic	Hybrid
133	PPL - Orange Bird Lda	PT	www.ppl.com.pt	2011	generic	Reward
134	Precipita	ES	http://www.precipita.es/	2012	research and innovation oriented	Donation
135	Pretgo	FR	https://www.pretgo.fr/	2014	generic	Lending
136	Pretstory	FR	www.pretstory.fr	2015	generic	Lending
137	Pretup	FR	https://www.pretup.fr	2014	generic	Lending
138	Proximea	FR	www.proximea.net	2015	generic	Equity
139	Q Ventures	UK	www.qventures.co	2013	generic	Equity
140	RealFunding	ES	http://www.realfunding.org/	2014	research and innovation oriented	Lending
141	Respekt.net	AT	www.respekt.net	2009	generic	Donation
142	Samenwerkende Kredietunies	NL	http://samenwerkendekredietunies.nl/	2013	generic	Lending
143	Science Starter	DE	https://www.sciencestarter.de/	2012	research and innovation oriented	Donation

144	Secured Assets	ES	www.secured-assets.net	2013	generic	Lending
145	Seedmatch	DE	www.seedmatch.de	2011	research and innovation oriented	Equity
146	Seedrs	UK	www.seedrs.com	2009	generic	Equity
147	SeedUps	IE	www.seedups.ie	2010	research and innovation oriented	Equity
148	SiamoSoci	IT	www.siamosoci.com	2011	research and innovation oriented	Equity
149	Smart Angels	FR	www.smartangels.fr/homepage	2012	generic	Equity
150	Socios Inversores	ES	www.sociosinversores.es	2010	generic	Equity
151	Solar Schools	UK	http://www.solarschools.org.uk/	2013	research and innovation oriented	Donation
152	sora-equity	FR	www.sora-equity.com	2015	research and innovation oriented	Equity
153	Sowefund	FR	www.sowefund.com	2014	research and innovation oriented	Equity
154	SparkUp	FR	http://www.sparkup.fr/		generic	Equity
155	SPEAR	FR	www.spear.fr	2013	generic	Lending
156	Stars Up	IT	http://www.starsup.it/	2013	research and innovation oriented	Equity
157	Startovač	CZ	www.startovac.cz	2013	generic	Reward
158	Symbid BV	NL	www.symbid.com	2011	generic	Hybrid
159	Syndicate Room	UK	https://www.syndicateroom.com/	2013	generic	Hybrid
160	TailwindCrowd	NL	http://tailwindcrowd.com/	2015	generic	Hybrid
161	Tāmaota	CH	http://www.tamaota.com/	2014	research and innovation oriented	Hybrid
162	TechnoFunding	UK	http://www.technofunding.com/	2013	research and innovation oriented	Hybrid
163	The Crowd Angel	ES	www.thecrowdangel.com	2012	research and innovation oriented	Equity
164	TousNosProjets.fr bpifrance	FR	http://tousnosprojets.bpifrance.fr/	2013	generic	Hybrid
165	Tributile	FR	https://www.tributile.fr/	2015	generic	Lending

166	TRINE	SE	www.jointrine.com	2014	research and innovation oriented	Lending
167	Ulule	FR	www.ulule.com	2010	generic	Hybrid
168	Unternehmerich	DE	www.unternehmerich.de	2013	generic	Equity
169	Venturate.com	DE	www.venturate.com	2015	research and innovation oriented	Equity
170	Venture Founders	UK	https://www.venturefounders.co.uk/	2013	research and innovation oriented	Equity
171	Vision bakery	DE	www.visionbakery.com	2011	generic	Reward
172	Vision Partners	CZ	https://www.visionpartners.cz	2014	generic	Reward
173	Vorticex	ES	http://vorticex.org/	2012	research and innovation oriented	Hybrid
174	Walacea	UK	https://walacea.com/	2012	research and innovation oriented	Hybrid
175	We share solar	NL	http://wesharesolar.com/	2012	research and innovation oriented	Lending
176	WeAreStarting	IT	https://www.werestarting.it/	2014	research and innovation oriented	Equity
177	Wecan.fund	CH	https://wecan.fund/	2015	generic	Hybrid
178	Welikestartup	FR	www.welikestartup.fr	2013	research and innovation oriented	Equity
179	Wellfundr	FR	https://www.wellfundr.com/en	2013	research and innovation oriented	Hybrid
180	Wemakeit	CH	www.wemakeit.ch	2012	generic	Hybrid
181	Windcentrale	NL	www.windcentrale.nl	2010	research and innovation oriented	Equity
182	WiSEED	FR	www.wiseed.com	2008	generic	Equity
183	Wspieram	PL	www.wspieram.to	2013	generic	Reward
184	yrityslainat.fi	FI	https://www.yrityslainat.fi/	2013	generic	Lending
185	Zopa	UK	www.zopa.com	2005	generic	Lending
186	Zorgfunders	NL	http://www.zorgfunders.nl/	2014	research and innovation oriented	Equity
187	Katrim	DE	http://www.katrim.de/	2008	generic	Equity

188	Kazuu	RO	www.kazuu.ro	2016	generic	Donation
189	Kritical mass	UK	https://kriticalmass.com/	2013	generic	Hybrid
190	Lainaaja.fi	FI	www.lainaaja.fi	2011	generic	Lending
191	Landbay	UK	https://landbay.co.uk/	2013	generic	Lending
192	Lanzanos	ES	www.lanzanos.com	2010	generic	Reward
193	Lendico	DE	https://www.lendico.es/	2013	generic	Lending
194	Lending Works	UK	http://www.lendingworks.co.uk/	2012	generic	Lending
195	LendingCrowd	UK	https://www.lendingcrowd.com/	2014	generic	Lending
196	LendInvest	UK	https://www.lendinvest.com/	2012	generic	Lending
197	Lendix	FR	https://lendix.com/	2015	generic	Lending
198	Liquid Finance	UK	http://liquidfinance.co.uk/	2013	generic	Lending
199	Ludia Ludom	SK	www.ludialudom.sk	2010	generic	Donation
200	Madiston	UK	http://www.madiston.com/	2012	generic	Lending
201	marketinvoice	UK	https://www.marketinvoice.com/	2010	generic	Invoice trading
202	Maroon.fr	FR	http://www.maroon.fr/	2015	generic	Equity
203	Mashup Finance	DE	www.mashup-finance.de/	2012	generic	Equity
204	Me Gusta Tu Idea	ES	http://www.megustatuidea.com/	2012	generic	Equity
205	Migranodearena.org	ES	www.migranodearena.org	2009	generic	Reward
206	Mipise	FR	www.mipise.com	2012	generic	Hybrid
207	Money&Co.	UK	https://www.moneyandco.com/home	2013	generic	Lending
208	MoneyZen	EE	https://www.moneyzen.eu/	2012	generic	Hybrid

209	Platform Black	UK	http://www.platformblack.com/	2012	generic	Invoice trading
210	Podpoř.to	CZ	www.podpor.to	2012	generic	Reward
211	Prestiamoci	IT	www.prestiamoci.it	2009	generic	Lending
212	Pretpme	FR	www.pretpme.fr	2014	generic	Lending
213	Proplend	UK	https://www.proplend.com/	2013	generic	Lending
214	Pubblico Bene	IT	www.pubblicobene.it	2011	generic	Reward
215	Rebulding Society	UK	https://www.rebuildingsociety.com	2012	generic	Hybrid
216	SAFIC Serveis d'assessorament financer i economic	ES	http://www.safic.eu/	2013	generic	Lending
217	Seeds	NL	https://www.seeds.nl/	2010	generic	Hybrid
218	Smartika	IT	www.smartika.it	2012	generic	Lending
219	thinCats	UK	https://www.thincats.com/	2011	generic	Lending
220	Thrill Capital	UK	www.thrillcapital.com	2013	generic	Equity
221	TIPeee.com	FR	www.tipeee.com	2014	generic	Donation
222	Trade River	UK	http://www.traderiverfinance.com/	2009	generic	Lending
223	Venture Bonsai	FI	www.venturebonsai.com	2010	generic	Equity
224	Wellesley & Co.	UK	https://www.wellesley.co.uk/	2013	generic	Lending
225	Zlty melon	SK	https://www.zltymelon.sk/	2012	generic	Lending
226	Afgrey MicroPower	UK	http://afgrey.com	2016	generic	Donation
227	Ideowi	PL	https://www.ideowi.pl/	2013	generic	Equity
228	Kapipal	IT	http://kapipal.com/	2009	generic	Reward
229	GreenChannel	FR	https://www.greenchannel.fr/	2015	research and innovation oriented	Equity

230	Open Circle Greece	EL	https://www.opencircleproject.com/	2014	generic	Equity
231	Tip Ventures	IT	http://tip.ventures/IT/landing	2013	generic	Hybrid
232	ZAAR	MT	http://www.zaar.com.mt/	2015	generic	Reward

ANNEX 3 PLATFORM DATA ANALYSIS

Work carried out

Dataset. In order to shed light on a number of questions related to the characteristics of R&I projects funded through alternative finance, we performed an extensive analysis of the AF platform data. As a first step, we created an original dataset that comprises project-level data from multiple AF platforms over several years.

The **ten platforms** were selected as the source of project data. We explicitly excluded two categories of platforms: i) platforms whose primary goal is not AF (e.g. websites of charity institutions, universities, or foundations that also enable only money donations); ii) platforms that do not allow campaigns from proponents located in at least some EU or affiliated countries (e.g. platforms, like Experiment.com that requires having a headquarters based in the US to be eligible).

The sample of platforms was selected to ensure coverage concerning:

- R&I Focus. R&I-oriented platforms (Wheat et al., 2013), and generic platforms that include R&I projects were selected.
- EU & affiliates Focus. The analysis included platforms that provide a sufficiently large coverage of projects from EU and affiliated countries, and from benchmark countries (for comparison).
- Main beneficiary type. The analysis included platforms whose main beneficiaries are individuals, companies, universities/higher education institutes or others.
- Platform type and AF type. The analysis included platforms conducting three types of AF: donations, rewards, equity (and/or a mix of these), and platforms working under an all-or-nothing and keep-it-all policy.[1] Peer-to-peer lending platforms were excluded from the platform data analysis due to the limited accessibility of the data.

The list of platforms included in the analysis, along with synthetic platform information, is reported in ANNEX 4. More specifically, the sample includes 1 equity-based platform, 2 donation-based platforms, 2 reward-based platforms and 4 hybrid platforms (of which, one mixes the equity model with the reward-based model, and three are a combination of reward and donation-based crowdfunding). Hybrid platforms ask the beneficiary to choose an AF model at the beginning of the funding campaign. The analysis took into account all of the projects that appeared on the selected platforms from the year that the platform was founded (earliest date April 2009) until April 2016. The analysis stored the following project-level information: campaign goal (in euros), total funding raised (in euros), total backers that supported the project, AF type (All-or-nothing, Keep-it-all), type of platform (equity, donation, reward), type of beneficiary (individuals, companies, university/higher education institutions, other organisations), project category (e.g. technology, videogame, etc.), fundraiser's country of origin, start/end date of campaign, written description.

In total, the platform dataset was made up of 263,781 unique projects that were launched between 2009 and 2016, by fundraisers located in 161 countries using 6 languages.

Table 1 shows the distribution of projects by platform in our sample. Of these, 67,240 projects are from EU and affiliated countries.[2] These projects raised EUR 866,726,231, which is estimated to be no less than 54% of the capital raised by EU projects.[3]

[1] Under an 'all-or-nothing' policy, the fundraiser is entitled to claim the money pledged in support of the campaign only if the total pledges at the date of campaign closure is at least equal or greater to the campaign goal. Under a 'keep-it-all' policy, the fundraiser is always entitled to cash-in
[2] Faroe Islands, Switzerland, Norway, Tunisia, Israel, Iceland, Ukraine, Moldova, Bosnia and Herzegovina, Albania, the Former Yugoslav Republic of Macedonia, Montenegro, Serbia, Turkey, United Kingdom, Sweden, Spain, Slovenia , Slovakia , Romania, Portugal , Poland, Netherlands, Malta , Luxembourg, Lithuania, Latvia, Italy, Ireland, Hungary, Greece, Germany , France, Finland, Estonia , Denmark, Czech Republic, Cyprus, Croatia, Bulgaria, Belgium, Austria
[3] Estimation made using data from Massolution (https://www.massolutions.com) on reward and equity crowdfunding (Massolution, 2015).

Table 1 Distribution of the projects by platform

Platforms	% of projects in the sample	% of projects in the EU- sample	Funding model
Crowdcube	0.13%	0.5%	Equity
DavinciCrowd	0.07%	0.2%	Donation
Futsci	0.001%	0.004%	Donation
Goteo	0.1%	0.4%	Hybrid (Donation+Reward)
Invesdor	0.002%	0.01%	Equity
Kickstarter	91.24%	69.2%	Reward
OnePlanetCrowd	0.1%	0.4%	Hybrid (Reward+Equity)
Rockethub	0.85%	0.003%	Reward
Ulele	7.5%	28.8%	Hybrid (Donation+Reward)
Derev	0.21%	0.7%	Hybrid (Donation+Reward)

An important caveat here is the order. As expected, the large majority of the sampled projects (91.2%) come from Kickstarter. Data from this platform is extensively used in scientific research and industry reports on AF (e.g., Colombo et al., 2015a). Concerning the EU estimates, it is important to consider that the data is likely to underestimate the importance of EU projects. The reason for this is that, until 2012, Kickstarter only allowed US and Canadian citizens to post AF projects. From 2012, it granted access to fundraisers (both companies and individuals) located in the UK. Finally, after 2014, it granted access to a larger number of EU countries (the Netherlands, Denmark, Ireland, Norway, Sweden, Germany, France, Spain, Italy, Austria, Belgium, Switzerland, and Luxembourg). Nonetheless, it is evident that, regardless of the time period, fundraisers chose to post projects on Kickstarter by opening subsidiaries in countries which were already eligible to access the platform. However, it was still considered necessary to include Kickstarter in the sample for a number of reasons. Firstly, Kickstarter is the largest and most renowned platform worldwide. This typically makes the platform the first choice for entrepreneurs who want to finance ambitious projects using reward-based crowdfunding. Indeed, Kickstarter enjoys a "first mover advantage" which can be seen in the larger "crowds" interested in funding projects. Secondly, the platform is known and widely used by European entrepreneurs. Finally, scientific research has already highlighted that Kickstarter hosts several R&I oriented projects (Colombo et al., 2015b). However, given that Kickstarter projects represent a significant share in our sample, the statistics are provided with and without the data from this platform, in order to exclude possible platform-specific biases.

Methods for coding R&I projects. The main goal of the Platform Data Analysis is to provide an estimate and description of the amount and share of AF that goes to R&I initiatives, and to provide statistics describing the characteristics of project campaigns and project fundraisers that have conducted AF for R&I activities. To this end, AF projects should be coded based on whether or not they are being directed at R&I. To perform the inherently difficult task of coding R&I projects, we adopted three alternative coding methods, each based on a different assumption and coding procedure. The three coding methods are:

Method 1: Platform-provided code. A first method consists in coding R&I projects based on the synthetic project description that the platform provides, usually called 'project category' (Colombo et al., 2015a).

We used the code R&I for those projects that belonged to the category "technology". We are aware that this method may overestimate R&I projects, as some of the projects labeled as technological do not necessarily have an R&I focus. For this reason, we can consider this method as an upper range for our estimates.

Method 2: Semantic analysis based on an endogenous sample. We created an algorithm that reads and understands the content of the projects, based on Bayesian machine learning techniques (Duda and Hart, 1973).[4] The algorithm codes problem instances (e.g. project description), given a set of textual features (Langley et al., 1992), and works in these steps. Firstly, the algorithm 'learns' which features are associated to a specific category from a training set of documents provided by the researcher. In this case, we used as a training set, 250 projects that were posted on either one of two science-centric platforms (Wheat et al., 2013): Futsci.com or on Experiment.com. Secondly, the algorithm codes a set of pre-coded documents, for which the status of R&I vs. non-R&I is known, and performs an accuracy test. The set of pre-coded documents was composed on 100 manually-screened projects, evenly split between R&I and non-R&I. Manual screening was performed independently by three researchers. Thirdly, if the level of accuracy is satisfactory (usually above a threshold of 75%), the algorithm assigns the set of uncategorised documents to the categories required. In our case, the categories include: R&I projects vs. non-R&I projects. After the three steps were completed, the algorithm performance was tested by asking the software to code a set of documents in which we mixed another set of Experiment or Futsci projects (which we know to be R&I) and a set of random pieces of text taken from film reviews (which we know to be non-R&I). The software showed a very satisfactory capability to associate the documents to the right code. A caveat of this method is that it is applicable only to project campaigns in English, because the learning set was only available in English.

This method tends to under-estimate the incidence of R&I projects, because the training set is composed of projects having a strong science/research focus. As such, the algorithm underestimates projects where research has been applied to address specific market needs. For this reason, we can consider this estimate as a lower range for our estimates.

Method 3: Semantic coding based on H2020 documents. We used the same Bayesian machine learning algorithm employed in Method 2, however, we instructed the algorithm using a different training set comprised by a list of documents extracted from the Horizon 2020 Work Programmes 2014-15 and 2016-17. We prepared the training set to include only those documents or parts of documents that describe the R&I-related content of actions and work programmes, and excluded documents that do not have a content-wise description of R&I (e.g. Marie-Curie actions that describe mobility action schemas, or parts of documents that describe the procedures for application and administration of a grant). The training set was given to the software in multiple languages: Dutch, English, French, Italian, Finnish, and Spanish,[5] making the software able to identify, analyse and code documents in all the languages in which the data existed. The testing of the algorithm performance was carried out as described for Method 2.

Amount and share of AF that goes to R&I

Overall, during the period 2009-2016, the platforms included in this study launched 263,781 projects requesting EUR 2,688,546,127[6] from the "crowd" and raising a total capital of EUR 2,146,294,108. The success rate, i.e. the percentage of projects that reached (or overcame) the target capital set by the fundraiser (in platforms, which allowed the fundraiser to set a target capital) was 36%.

In Table 2 R&I projects – An overview we report the estimate share of R&I projects and related figures. Out of the total 263,781 projects, Method 1 classified 32,445 projects (12.3% of the total projects) as R&I, Method 2 classified 18,412 projects (7.0% of the total) as R&I, and Method 3 classified 41,413 projects (15.7%) as R&I. These results are in line with what we expect from our methodology in that Method 2 sets the lower bound. Conversely, Method 3 classified the largest number of projects as R&I. In any case, the discrepancy between the most restrictive (Method 2) and the less restrictive method (Method 3) is of 23,001 projects, which corresponds to 8.72% of all projects, a figure that highlights the reliability of our approach.

[4] Bayesian classifiers perform well in many real-world situations, such as spam filtering (Sahami et al.,1998) and customers risk profiling (Calders and Verver, 2010). These algorithms have the advantage to require a small amount of training data to estimate the necessary parameters. Moreover, Bayesian classifiers can be extremely fast compared to more sophisticated methods (Zhang, 2004). This in turn makes these algorithms particularly suitable when the size of the input sample is high (Webb et al., 2005).

[5] Translations were validated or edited by mother-tongue humans, starting from machine-translations from the original in English.

[6] The monthly-averaged exchange rates were used, when the project was expressed in a currency different than Euro (Source: ECB https://sdw.ecb.europa.eu/browse.do?node=2018794)

When considering the average number of R&I projects presented worldwide across the three methods, it can be seen that the share of R&I projects aiming to raise funds from the crowd of the Internet users is about 11.6% of the total projects, corresponding to approximately 30,757 projects.[7] The share of successful R&I campaigns is about 8.1%, lower than the average 36% across all project types. Considering only the successful campaigns, R&I projects represented 34.3% of the total crowdfunding share, equivalent to estimated funds of about EUR 733,830,102.[8] The figure suggests that, on average, R&I projects are larger in size compared to the average project, and are therefore effective in attracting contributions from the crowd.

Overall, there were 67,240 projects located in the EU and affiliated countries, representing a total of EUR 866,726,231 of raised funds. When we calculate the share of R&I projects, based on the average estimate of the three methods, we see that the share of R&I projects in the EU or affiliated countries is 9.4% (slightly lower than the global share of 11.6%), corresponding to about 6,307 projects. Amongst the projects based in the EU and affiliated countries, the overall success rate is 9.2% (slightly higher than the average global R&I success of 8.1%). The successful R&I projects based in the EU and affiliated countries raised a total of EUR 248,750,428, equivalent to 28.7%.

In conclusion, on average, R&I projects raise more funding than the average project, both globally and in the EU and affiliated countries. Compared to the rest of the world, the average share of R&I projects in the EU and affiliated countries is slightly lower and the respective project size is smaller, although these projects have a slightly higher success rate.

Table 2 R&I projects – An overview

	Total no. of projects launched	Total amount raised	No. of R&I projects launched	% of R&I projects launched over the total	N. of successful R&I projects	% of successful R&I projects over all R&I projects	Amount raised for R&I	Share raised for R&I over total amount
Method 1	263,781	2,146,294,108	32,445	12.3%	2,953	9.1%	749,651,223	34.9%
Method 2			18,412	7.0%	1,547	8.4%	675,032,678	31.5%
Method 3			41,413	15.7%	2,981	7.2%	776,806,404	36.2%
Average	-	-	30,757	11.6%	2,494	8.1%	733,830,102	34.3%
Average EU-only	67,240	866,726,231	6,307	9.4%	578	9.2%	248,750,428	28.7%

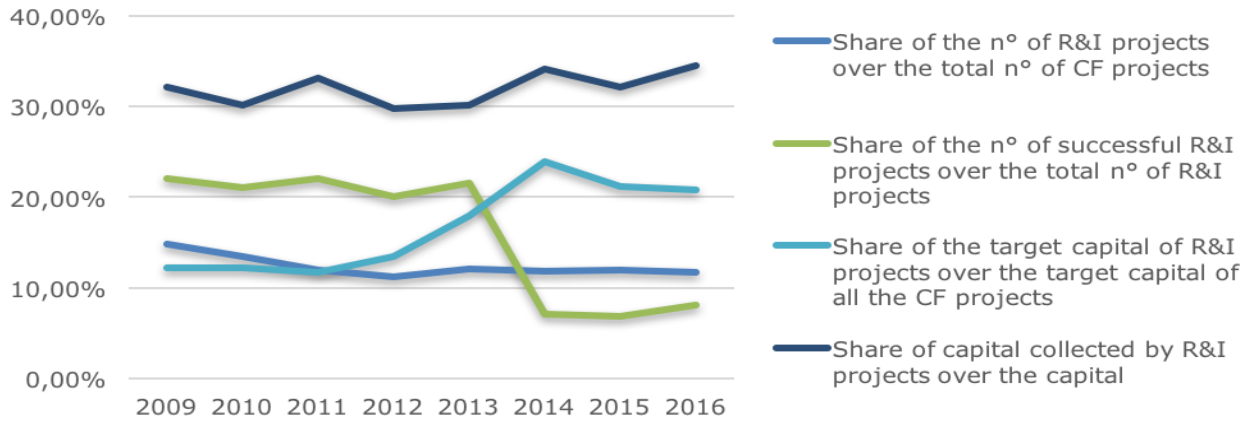
A final note: the three methods provide consistent results, therefore, in the following sections, we have used average values. More specifically, we firstly calculated the statistics for each of the three methods and we then calculated the average values of these statistics.

[7] This is computed by dividing 30,757, i.e. the average number of R&I projects estimated across the three methods, by the total of 263,781 projects.
[8] This is computed by dividing 733,830,102 euros, the average amount raised for R&I projects estimated across the three methods, by the total amount raised of 2,146,294,108 euros in all project types.

R&I AF Trends from 2009-2016

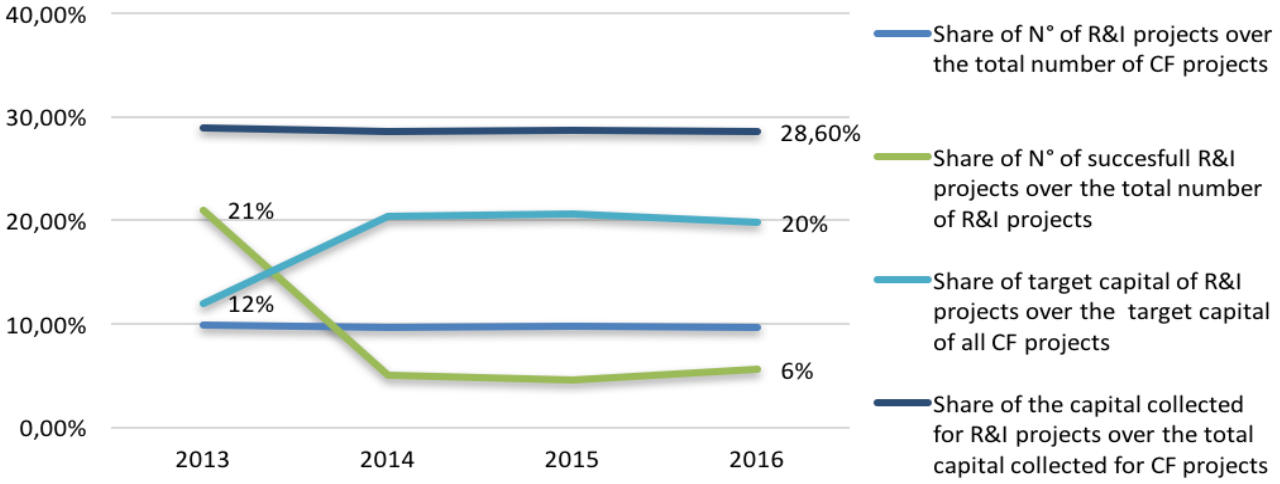
To assess the dynamics over time (from 2009 to 2016) of the AF of R&I projects, we consider a set of dimensions, which we deem to be relevant in this realm. More specifically, in Figure 1) the **blue line** assesses the yearly share of the number of R&I projects with regard to the total number of AF projects hosted on the platforms included in our study; ii) the **red line** refers to the yearly share of the number of successful R&I projects with regard to the total number of R&I projects; iii) the **green line** shows the yearly share of the target capital of R&I projects with regard to the target capital of all the AF projects hosted on the platforms included in our study; iv) the **purple line** accounts for the yearly share of capital raised by R&I projects with regard to the capital raised by all the AF projects hosted in the platforms included in our study. Please note that we calculated all of the data in the following figures by referring to the average of the three methods (as described above).

Figure 1 R&I AF Trends from 2009-2016 – Worldwide projects



	2009	2010	2011	2012	2013	2014	2015	2016
R&I projects	277	1871	4450	4206	3862	6101	7045	2952
Amount Raised by R&I (EUR)	993,649	22,795,472	83,376,002	91,872,048	55,179,576	193,805,229	163,731,231	85,370,803

Figure 2 R&I AF Trends from 2013-2016 – European projects



	2013	2014	2015	2016
R&I projects	1262	1927	2317	876
Amount Raised by R&I	24,933,151	98,478,045	91,857,492	38,483,180

When considering worldwide projects, the share of R&I projects with regard to all projects (blue line) slightly decreases overtime from around 15% in 2009, to around 11% in 2016. Such a dynamic might be due to the success of the crowdfunding phenomenon in recent years. Nowadays, more and more fundraisers ask for support from the crowd of internet users for a wide variety of projects, including not only entrepreneurial projects, but also projects referring to personal goals, such as the payment of tuition fees to attend prestigious universities. The extremely rapid entrance of so many fundraisers with such diverse goals, has more than likely diluted the weight of R&I projects in such a mare magnitude. In parallel, the success rate of R&I projects (red line) has decreased over time: it was approximately above 20% until 2013 and sharply decreased in 2014, levelling-off at around 8% in the two subsequent years. Likewise, the share of target capital of R&I projects with regard to the capital of all crowdfunding projects hosted on the platforms included in our study (green line), has sharply raised since 2011 with a peak in 2014, and levelling-off in 2015 and 2016 at around 20%. When considered together, the two dynamics, represented by the red and green line, may indicate that R&I projects have increased their target capital and that this has contributed to the decrease in their success rate. Broadly speaking, it may be that, over time, more and more fundraisers decide to resort to the "crowd" to finance larger research and innovation projects, which require many resources. Finally, it is worth noting that the time dynamic of the share of the amount raised by R&I projects with regard to the total amount (purple line) is encouraging. During the whole period, R&I projects accounted for more than 30% of the total raised capital, climbing up to 35% in 2016.

Interestingly enough, data on EU projects unveil similar trends, which we can attribute to the same forces that we have described above, when commenting on the overall trends. Specifically, the share of R&I projects with regard to the total projects (blue line) has halved overtime from around 9.5% in 2013 to around 4.5% in 2016. Similarly, the success rate of R&I projects (red line) has decreased over time. It was above 20% in 2013 and then sharply decreased in 2014, levelling-off at around 5% in the two subsequent years. Conversely, the share of target capital of EU R&I projects (green line) has sharply risen in 2014 surpassing 20%. Finally, the share of the amount raised by EU R&I projects with regard to the total amount (purple line) and the share of the number EU R&I projects with regard to the total EU R&I projects has remained constant over years, remaining lower than worldwide data.

Main beneficiaries of R&I AF projects

We define as the main beneficiary of an R&I AF project, the fundraiser of that R&I project. In the case of projects with more than one fundraiser, we code the main beneficiary as the first fundraiser listed in the project page on the platform. In particular, we distinguish between projects that have as their main beneficiaries: individuals (including also teams of individuals), firms, universities/higher education institutions, and other organisations (as associations, foundations, etc.). Figure 3 shows that the large majority (66%) of R&I projects have individuals (or teams of individuals) as their main beneficiaries. In other words, in the world of crowdfunding, research and innovation still comes mainly from independent innovators. Firms come second, accounting for 21% of the main beneficiaries of the R&I projects hosted on the platforms sampled for our study. Thus, our data supports the idea that AF may be of help to individuals in overcoming the difficulties of raising money, especially with regard to R&I (Agrawal et al., 2013; Mollick and Nanda, 2014).

Surprisingly enough, universities and higher education institutions are the main beneficiaries only in 3.7% of the cases. This is probably because universities and higher education institutions can resort to other sources for financing their research and innovation projects, such as governmental funding or research grants from supra-national institutions (like those from the European Union). In 8.3% of the cases, other institutions (such as associations or foundations) are the main beneficiary of AF projects focused on R&I. As this percentage is not small, future studies should devote more attention to the role of these institutions in this realm by exploring, for example, which projects they present and which challenges these projects address.

If we focus on EU projects, the imbalance towards individual fundraisers is even stronger. In 81% of the cases (see Figure 4), the main beneficiary of R&I AF projects are individuals (or teams of individuals), whilst firms account for only 13% of the cases. Comparatively, fewer Universities and other institutions are the main beneficiary of R&I AF projects in Europe. These findings may suggest that, in general, European organisations are less informed about the potential offered by AF to finance R&I projects. In turn, these **universities and research centres as keen to use crowdfunding** as those in the United States. This leaves room for policy interventions intended to stimulate awareness about this new financial instrument amongst organisations.

Figure 3 Type of main Beneficiary of R&I AF projects - Worldwide

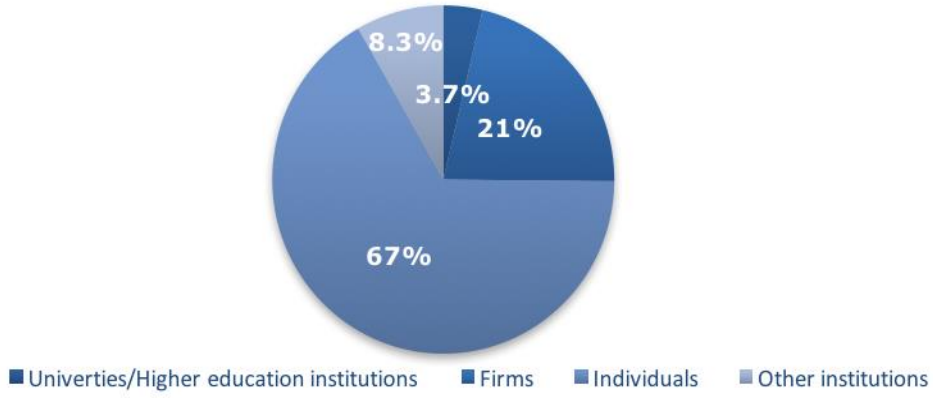


Figure 4 Type of main Beneficiary of R&I AF projects – EU projects

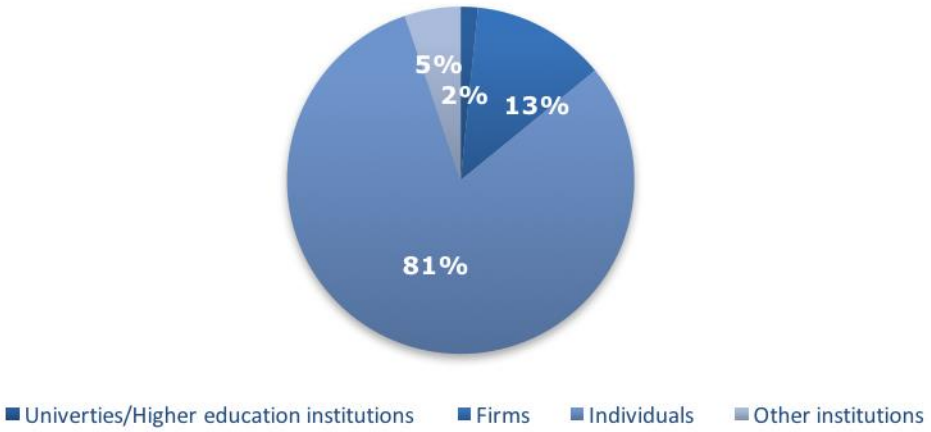


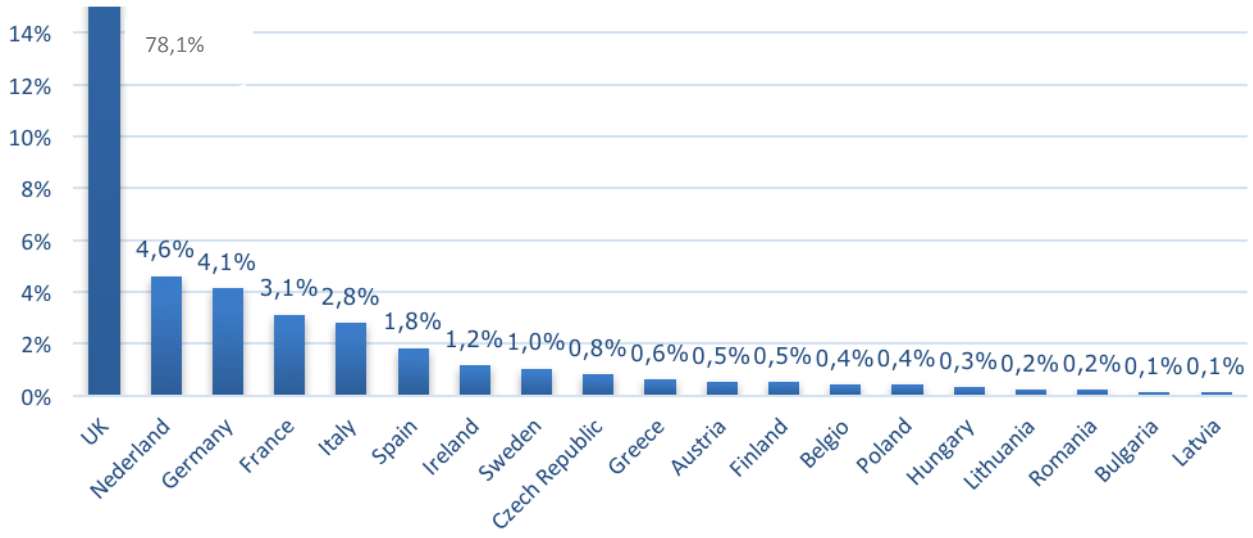
Figure 5 Type of main beneficiary, EU estimates without Kickstarter data

Distribution of R&I AF per country

This section presents the distribution of R&I AF projects by the country of residence of the fundraisers. As a premise, it is important to highlight that until 2015, only fundraisers from the United States and the United Kingdom were allowed to present projects on Kickstarter, which is the largest platform included in our study. To take this into account, the data presented refers only to R&I projects posted online in 2015 (starting from June 2015 for R&I projects hosted on Kickstarter). Even after taking these considerations into account, the large majority of the R&I projects (78%) are based in the United States, whilst Europe accounts for 6,656 R&I projects (21%). If we consider the distribution across the EU-28 countries of the 6,656 R&I projects based in Europe, most of the European R&I projects are based in the United Kingdom (namely 4,921 projects out of 6,656; 78.1%). This highlights the prominence of the AF phenomenon in the United Kingdom, a country which hosts many crowdfunding platforms (Dushnitsky et al., 2016) and many AF projects (Massolution, 2015). The number of R&I projects in the other EU countries is much lower. For instance, the Netherlands, Germany, Italy, and France, which rank respectively second, third, and fourth in the number of R&I projects, account for only 0.96%, 0.86%, 0.59% and 0.65% projects (respectively). Amongst the EU-related countries, there are no projects in Albania, the Former Yugoslav Republic of Macedonia, Malta, Montenegro, Serbia and Turkey.

For the sake of relevance, we also included in our analysis some countries from outside the EU that we deemed to be relevant in the AF realm. In particular, five R&I projects are based in Tunisia, rwo projects are based in Fær Øer Islands and five5 projects in Ukraine.

Figure 6 Number of European projects



R&I AF per AF type and platform type

Three main types of platform (equity, rewards, and donation) host the projects, which we consider in this analysis. In addition, following (Dushnitsky et al., 2016), we include hybrid platforms, i.e. platforms which adopt two or more AF models simultaneously (e.g. rewards and donation). Likewise, in line with the mainstream AF literature, we distinguish the AF type as All-or-Noting (AoN) vs. Keep-it-All (KiA). In the AoN AF type, fundraisers specify a target capital that they must meet. The approach is AoN, as should the project not reach its target, then the fundraiser does not receive any of the money that has been pledged. Conversely, in the KiA AF type, fundraisers can keep any funds raised, even when money that the "crowd" has pledged is below the target capital (Belleflamme et al., 2015).

Figure 7 R&I AF per AF type – Worldwide projects

Figure 8 R&I AF per AF type – European projects

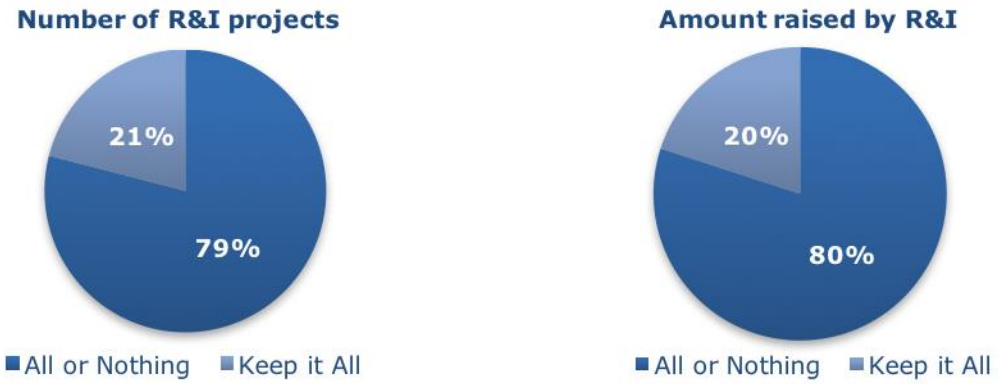
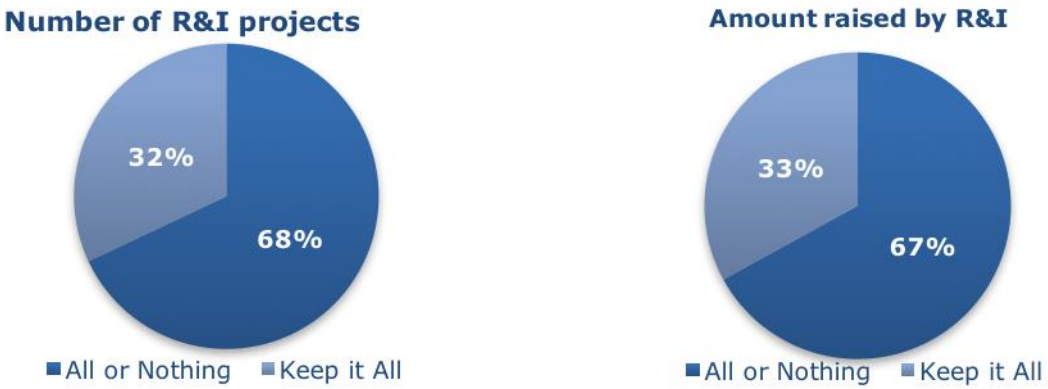


Figure 9 R&I AF per AF type - EU estimates without Kickstarter data



The figures show that the majority (89%) of R&I projects in our analysis are hosted by AoN platforms. This data may be driven by the fact that Kickstarter, the largest platform of our sample, is of this type. However, as projects distribute themselves into the diverse platforms, these trends may also relate to the fact that AoN platforms are more popular in the AF realm. The distribution of the amount of raised capital between the two AF models is rather similar: 86% of the total capital is raised by R&I projects hosted on AoN platforms, whilst 14% of the total capital is raised by R&I projects hosted on the KiA platforms. If we disregard the platform-effect that we have just mentioned, the fact that the majority of the R&I AF projects are hosted and collect capital through AoN platforms, highlights the trust that fundraisers have in the crowd of internet users. To put it more simply, the proponents of AF projects in the realm of science and innovation bet on the "crowd". They are positive about the fact that the Internet users can recognise the value of their innovative ideas, set a target capital and try to reach it. These trends occur when we restrict our analysis to EU projects. Specifically, 79% of the European R&I projects (vs. 89% of the worldwide projects) are hosted on AoN platforms, whilst 80% (vs. 86% of the worldwide projects) of the capital raised by European R&I projects comes from AoN platforms.

The following figure reports the distribution of the projects by **platform type**. Also in this case, a caveat is on order in that this distribution may be driven by the platforms included in our sample and by the number of projects hosted on these platforms. Again, Kickstarter is a reward-based platform, which host many projects. Accordingly, most of the R&I projects included in our analysis (65%) are hosted and collect capital on reward-based platforms. It is interesting to note that R&I projects are also well represented within hybrid platforms (32% in terms of the total number of R&I projects and 29% in terms of the capital raised). Conversely, R&I projects are very rare on donation and equity-based platforms. These platforms account for 2% and 1% of the total number R&I projects respectively, in terms of the number of projects. Interestingly enough, projects hosted on equity platforms account for 3% of the total capital raised by R&I projects. This result highlights the fact that R&I projects hosted on equity

crowdfunding platforms are normally larger and thus attract a large share of capital when they do succeed. If we focus our analysis on EU R&I projects, we observe similar results. However, in this case, it is interesting to observe that a comparatively higher share of projects is hosted and raised capital from equity platforms (6% versus 1% and 3% versus 7%, respectively). These findings seem to support the idea that equity crowdfunding is well-known in Europe, thanks also to the intense press coverage that followed the approval of equity crowdfunding regulations in some European countries (for instance in Italy). Furthermore, the US market for equity crowdfunding has struggled to take off due to the delay in the adoption of the rules by the Securities and Exchange Commission, which entered into force only in May 2016. The imbalance between European R&I and worldwide projects is even stronger when hybrid platforms are considered. This may be due to the larger diffusion of this kind of platform in Europe.

Figure 10 R&I AF per platform type –Worldwide projects

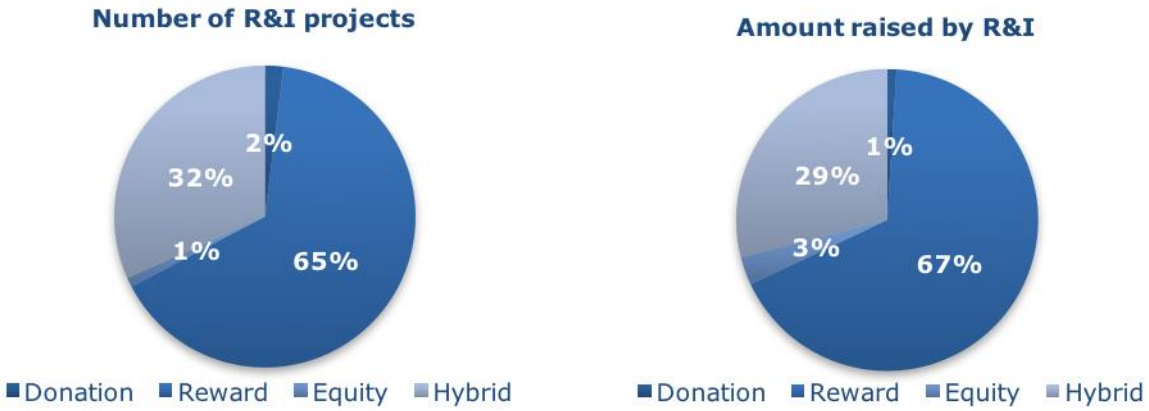


Figure 11 R&I AF per platform type – European projects

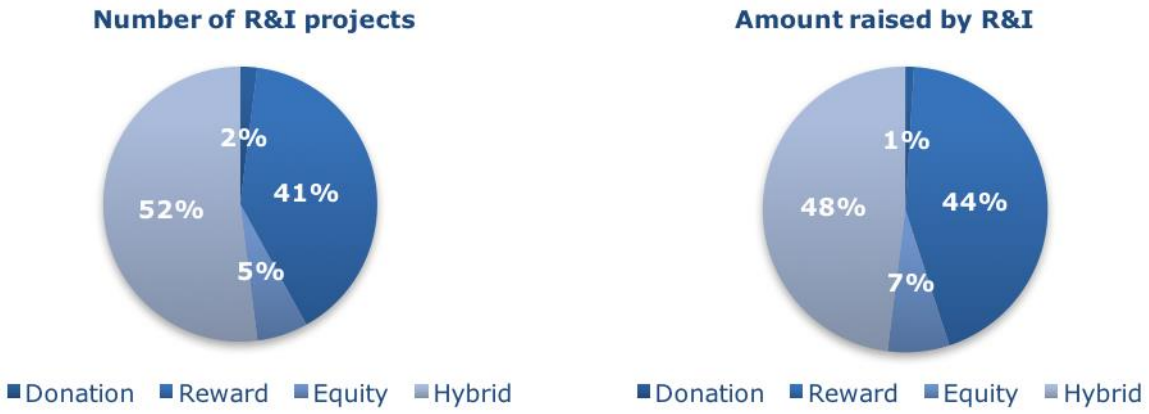
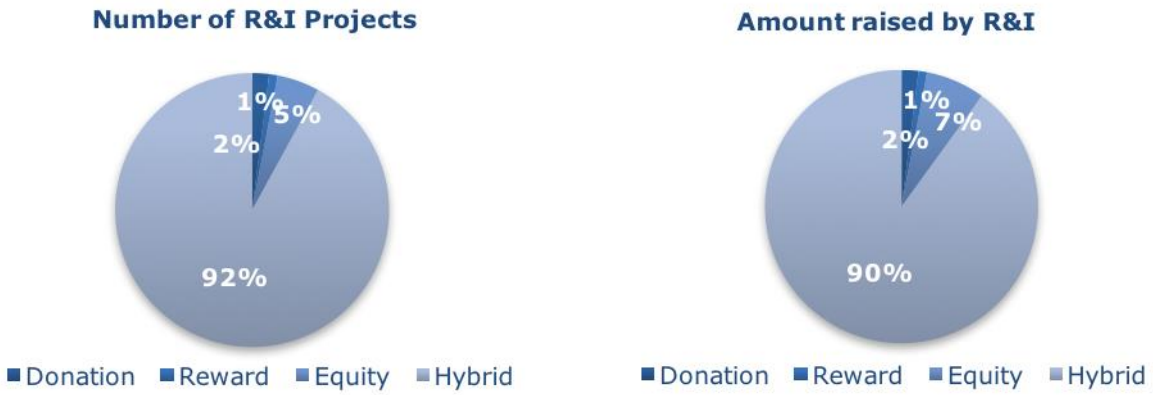


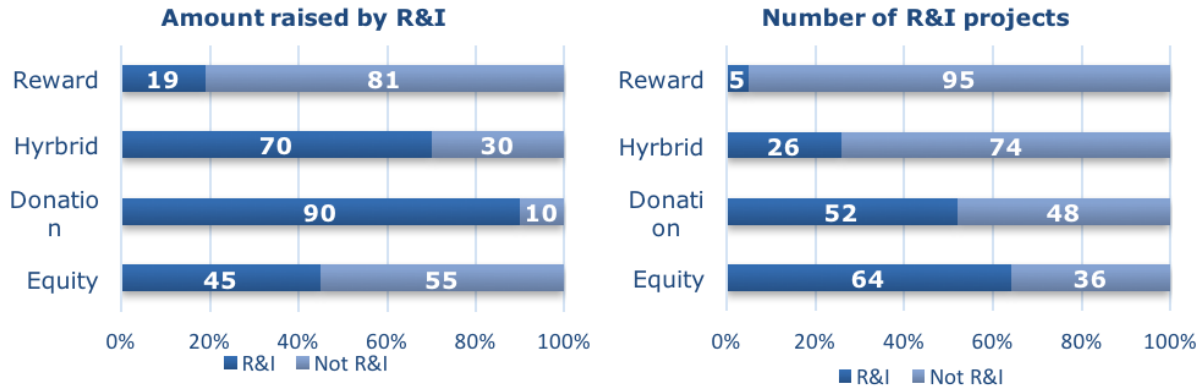
Figure 12 R&I AF per platform type - EU estimates without Kickstarter data



In order to gain insight on the relative distribution of R&I projects with respect to the type of platform, in the following figures we have charted the share of projects that relate to R&I for each of the four platform types. As the graph shows, in terms of the number of projects, R&I projects are the majority of equity and donation projects in the European sample, accounting for 64% and 52% of total projects, respectively. R&I projects represent only a small share (5%) of rewards-based AF, where the majority of campaigns are typically run with the aim of funding music, films and other forms of culture and entertainment projects (Colombo et al., 2015b). Finally, the share of R&I projects on hybrid platforms is 26%, likely reflecting a mix of the three previous types.

When we look at the share of R&I money raised by platform type, rather than at the share of projects by platform type, we see that 90% of the donation-based money was raised for R&I projects. This suggests that the R&I donation-based projects are relatively larger in size when compared to non-R&I projects of the same type. Rewards-based AF shows a similar pattern. This is because the share of R&I projects was only 5%, but the share of capital raised represents 19% of the total rewards-based AF money. Conversely, equity-based R&I projects, which represent 64% of the total number of projects, only raised about 45% of equity-based AF money. This suggests that non-R&I equity projects tend to have, on average, larger budgets when compared to R&I projects. Amongst non R&I projects, real estate projects are very common (e.g. the restoration of an ancient building to create a hotel in France). Also, food related projects are well represented (e.g. craft made beers). Hybrid R&I projects, which reflect a mix of the three types, account for about 70% of the total amount raised by hybrid platforms, indicating that hybrid R&I projects have the tendency to be larger in size when compared to hybrid non-R&I projects.

Figure 13 Share of R&I projects & amount raised by platform type, European projects



Distribution of AF by Research or Innovation

Making a distinction between R&I projects, which focus (mainly) on Research, and R&I projects which focus mainly on Innovation, is an inherently complex task. A clear distinction between Research and Innovation is inherently difficult, if not impossible to capture and would not make much sense in both theoretical and practical terms. However, we would ideally wish to separate AF that attempts to fund mainly pure investigation not yet aimed at a market goal (i.e. Research), from AF that attempts to fund mainly a market application (i.e. Innovation). To this end, we ran the semantic algorithm (described in our Method 2) on the whole dataset of projects, using two distinct training sets: university and technology. The training set "university" includes projects proposed by universities, which we classified as research projects a priori, whilst the training set "technology" includes projects launched by firms on Kickstarter under the technology category, which we classify as innovation projects a priori. In doing so, we were able to classify projects into the following categories: research, innovation, and undetermined. Specifically, we define them as: i) Research projects, the projects labelled as positive with an accuracy of 75% or greater when the learning set university is used, ii) Innovation projects, the projects labelled as positive with an accuracy of 75% or greater when the learning set technology is used; iii) Undetermined, all the other projects. Interestingly enough, only 15% of the projects are classified as undetermined. Moreover, the large majority of the R&I projects (65%) are assigned, through our classification process, to the Innovation category, whilst only 20% of the R&I projects fall into the Research category. These results shed further light on the idea sketched by (Colombo et al., 2015b), that using AF to finance (basic) research projects is far from simple. Indeed, as the authors have noted, AF is more suitable when the project outcome is a ready-to-use product that can be offered in exchange for the pledge. This makes AF more suitable for innovation projects, which are close to market delivery, but puts into doubt the suitability of AF as a means for funding basic research.

Similar conclusions can be found when we focus our analysis on EU R&I projects. In particular, 62% of EU R&I projects fall into the innovation category, whilst 21% of the projects fall into the research category. The proportion of the projects that the process classified in undetermined category is also comparable: 17% as opposed to 15%. Again, this result seems to highlight the reliability of our procedure.

Figure 14 Research versus Innovation in R&I projects – Worldwide projects

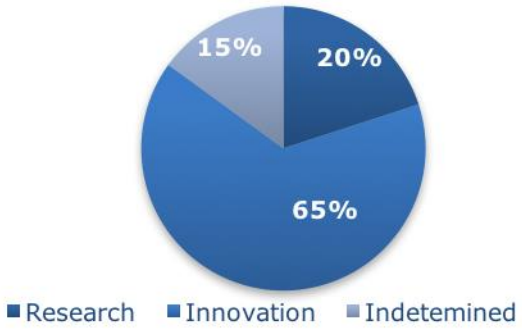
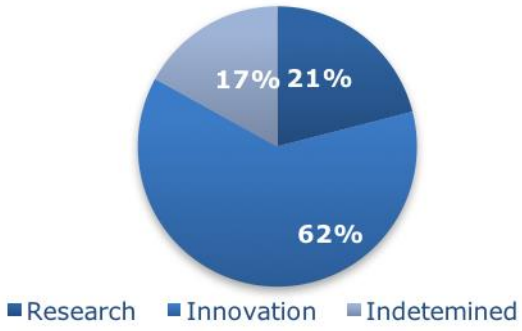
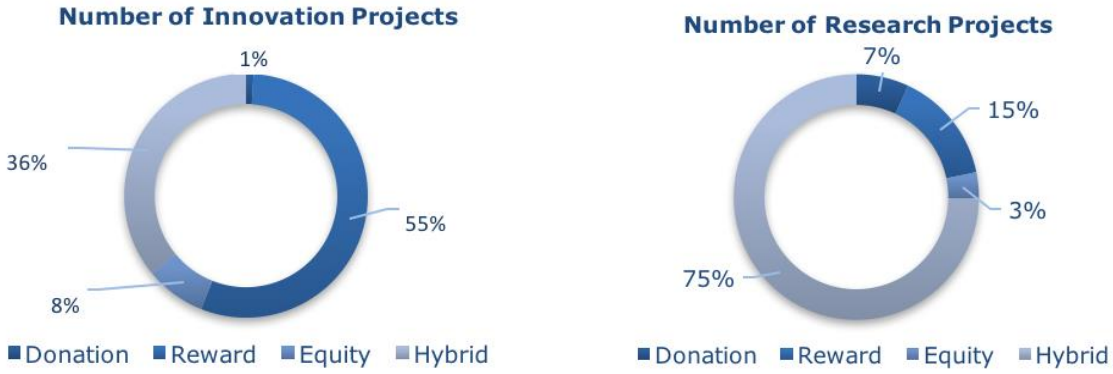


Figure 15 Research versus Innovation in R&I projects – European projects



Specifically, with regard to European projects, we analysed the distribution of Research vs. Innovation across the different platform types. Innovation projects are mainly funded through rewards-based platforms. This data may be driven by the fact that Kickstarter, which hosts the majority of projects in our sample, is a rewards-based platform and was also used to train the algorithm. Research projects are mainly funded through hybrid platforms. A difference exists between donation and equity platforms. Equity platforms are comparatively selected more often for innovation projects (8% for innovation projects, 3% for research projects), whilst donation platforms are preferred for basic research projects (1% for innovation projects, 7% for research projects).

Figure 16 Distribution of Research vs. Innovation Projects across platform types



Contribution to R&I projects: average data

In this section, we calculated statistics on the average contributions to R&I projects. These statistics are important because they shed light on other aspects of the research. In other words, it is very important to know how many EU projects exist in Europe and worldwide. However, it is fundamental to learn more on how the crowd of internet users is willing to contribute to these projects. Interestingly enough, R&I projects, on average, raise more funding than other projects seeking money from the "crowd" (EUR 23,958 vs. 8,136). This pattern exists both when considering the worldwide and EU-restricted samples, being even exacerbated in the latter. Such a pattern may point to the fact that R&I projects obtain funds from the part of the "crowd", which is more sensitive to issues related to research and innovation. This part is probably small, but includes people who are keen to contribute more, because they consider the issue to be of great importance. We calculated additional statistics in Table 3 and Table 4 (statistics only represent the subsample of projects classified as R v. I).

Table 3 Contribution to R&I projects – Average data

	Worldwide	EU-restricted
Average amount raised by research projects	32,797	25,672.8
Average number of backers for research projects	39.2	33.6
• For successful research projects	208.1	165.7
• For unsuccessful research projects	10.2	26.6
Average amount backed for successful research projects	EUR 157.6	EUR 154.9
Average amount raised by Innovation projects	21,083.5	34,290.7

Average number of backers for Innovation projects	27.5	25.9
• For successful Innovation projects	163.7	183.4
• For unsuccessful Innovation projects	17.3	14.1
Average amount backed for successful Innovation projects	EUR 128.7	EUR 184.1

We also calculated the aforementioned average statistics on contributions by platform type and AF type. Furthermore, we made a distinction between projects, which our algorithm classified as being oriented to either research or innovation. On average, those R&I projects presented on equity platforms raise a greater amount of funding. This finding is in line with the general knowledge that suggests that equity projects are usually larger than those hosted in other platforms. This phenomenon is particularly evident when considering the worldwide sample, whilst it is much more limited in the case of EU projects. No particular differences emerge in terms of contribution between R&I projects presented on AoN as opposed to KiA platforms. Finally, it is interesting to note that research projects comparatively raise greater amounts of money. This result highlights the existence of a section of the crowd on internet users, who are particularly keen to contribute to scientific development and who are willing to place large amounts of money on research projects. This provides some evidence that the "crowd" contribute with larger sums to R&I because they feel emotionally attached to this field.

Table 4 Average amount raised by platform type, AF type and research or innovation type (€)

	Worldwide		**EU-restricted**	
	Research	Innovation	Research	Innovation
Donation	19,598.1	22,745.1	14,476.3	17,856.5
Rewards	28,672.7	16747,5	24,556.3	35.949,6
Equity	32,453.7	45,361.8	32,873.9	46,762.4
Hybrid	17,461.5	23,761.7	26,661.4	32,116.3
All or Nothing	33,821.6	24,546.1	27,658,6	45,074.7
Keep it All	31.732.8	21,002.7	22,914.3	37,562.1

ANNEX 4 LIST OF PLATFORMS FOR DATA PLATFORM ANALYSIS

Platform name	AF Type	R&I focus	Language	Headquarter location	Year of foundation
Crowdcube	Equity	no	English	UK	2010
Derev	Hybrid	no	Italian	Italy	2013
DavinciCrowd	Donation	no	French	France	2013
Futsci	Donation	yes	English	United Kingdom	2014
Goteo	Hybrid	no	Spanish	Spain	2011
Invesdor	Hybrid	no	Finnish	Finland	2012
Kickstarter	Reward	no	English	USA	2009
OnePlanetCrowd	Hybrid	no	English	The Netherlands	2012
Rockethub	Reward	no	English	USA	2009
Ulule	Hybrid	no	French and Italian	France	2010

ANNEX 5 TRAINING SET EXTRACTS FOR DATA PLATFORM ANALYSIS AND EXAMPLES OF TEXT CLASSIFICATION

Method 2: Text available at the following links:

https://www.futsci.com/project/the-aluminium-alzheimer-s-disease-hypothesis-what-is-the-role-of-aluminium-in-alzheimers-disease

https://www.futsci.com/project/antimalarial-cancer

https://www.futsci.com/project/antybuddy

https://experiment.com/projects/are-biofilms-responsible-for-heavy-metals-on-plastic-debris?s=discover

https://experiment.com/projects/how-can-we-use-the-snapping-shrimp-s-hunting-ability-in-everyday-engineering-applications?s=discover

https://experiment.com/projects/digital-preservation-of-immaterial-island-culture-in-the-face-of-climate-change?s=discover

Method 3: Extracts from the H2020 work programs used to train the algorithm

[…] The ICT field includes smart components, micro-systems and cyber-physical systems; advanced computing systems; networking; cloud and internet technologies; sensors and actuators; Internet of Things; intelligent interfaces and robotics systems; as well as software, simulation and visualisation tools and big data analytics technologies. These will build the foundations for the next generation of solutions to all Focus Areas, including health and care, food security, smart cities, energy efficiency, mobility, resource efficiency and digital security. In addition, some ICT KETs and tools will contribute directly to societal challenges (SC). For example, ICT-KET integrated platforms include: low-cost, micro-nano-bio and bio-photonics systems developed for the healthcare and food sectors; mobile, low-cost, point-of-care biophotonics devices for the screening of cardiovascular cancer and neurodegenerative diseases; a Big Data integrator platform to help coordinate technology and user communities in any actions supported in Horizon 2020 addressing or making use of Big Data, including all societal challenges. […]

[…] Nanotechnology and advanced materials are key drivers for breakthrough innovations in many fields. This work programme identifies a number of activities to foster their potential to enable new medical therapies contributing to personalised health care, to create and improve the technological basis for a wider use of renewable energy sources and to realising energy efficiency goals, to provide clean water, and to increase the resource efficiency and reduce waste in the context of industrial and manufacturing processes. For example, in order to combat cancer and diabetes, the technological basis for nanomedicine treatment and bio-materials will be brought towards pilot production as a precondition for subsequent clinical trials. New forms of energy storage and maintenance questions are key for the development and attractiveness of decentralised energy production from renewable sources. The activities on energy-efficient buildings will deliver a key contribution to the focus area on energy efficiency and the related policy objectives. One topic is dedicated to drinking water production and thus represents a contribution to the focus area on water. The calls on Sustainable Process Industries (SPIRE) and Sustainable Industry Low Carbon II (SILC II), and to a large extent the call on Factories of the Future, make key contributions to the focus areas on waste as a resource to recycle and reuse and on competitive low-carbon energy. Finally, the NMP call includes a support action on the eco-design of products, ecoinnovation, and product life cycle management. […]

[…] Biotechnology projects are expected to develop generic technology building blocks enabling true stepping stones towards solutions to a number of societal challenges: Better health (SC1); Low-carbon energy generation (SC3); Resource- and energy- efficiency and industrial pollution reduction (SC5). Moreover, for the bio-based industries JTI, together with Societal Challenge 2 (Food security, sustainable agriculture, marine and maritime research and the bio-economy) contribution, activities will include biotechnology-based solutions for the cost-competitive and sustainable conversion of biomass into industrial products. In addition, biotechnology is relevant for a number of focus areas (blue growth, sustainable food security, competitive low-carbon energy, energy efficiency, waste, water, personalised medicine). In some instances, biotechnology is specifically stated in the context of some topics (e.g. blue growth). In other cases, it is one of the technologies that the participants can use to address the specific challenges. […]

[…] Space systems produce information which often cannot be acquired in any other way and hence space based data is an important tool for effectively addressing many of the societal challenges and focus areas. The application of space technologies is thus expected to be supported through the respective Societal Challenges, where appropriate. In addition to this mainstreaming of space data exploitation, research on new ideas which ensure Europe´s leadership in space-enabled applications outside the remit of the societal challenge areas, or addresses directly space industry competitiveness, or enables the future use of Space data in societal challenges, is supported in calls in the Space domains of EGNSS and Earth Observation. […]

Example of text classification

- Research project

This project will investigate bacteria that could protect corals and shellfish from fatal infections by the bacterium Vibrio coralliilyticus. Several bacteria we've found produce antibacterial compounds that inhibit V. coralliilyticus growth and potentially prevent infection. If we can learn what these compounds are and how they work, we can use this knowledge to develop treatments before the world's reefs and shellfish are beyond saving. Ask the Scientists JOIN THE DISCUSSION What is the context of this research? V. coralliilyticus causes coral bleaching and/or tissue loss, a fatal condition, which is defined as the destruction of the coral tissue and exposure of the white skeleton. Corals are thought to use microbes inhabiting their mucus to protect against infection from V. coralliilyticus. We have isolated bacterial strains from healthy coral mucus that can inhibit the growth of V. coralliilyticus in the laboratory. Their role in protecting coral from V. coralliilyticus remains untested. While the prevailing theory is that the mucus microbes that stop V. coralliilyticus growth are involved in protecting the coral host from infection, our research will be the first to show this directly. What is the significance of this project? Coral reefs are irreplaceable cornerstones of countless marine ecosystems, but they are threatened by diseases caused by V. coralliilyticus. This pathogen is also responsible for widespread mortality at oyster hatcheries, which poses a threat to economically important marine food corps. Gaining a better understanding of how coral naturally defend against this pathogen could facilitate treatment and control of the disease. This work is quite similar to the studies currently being conducted on the bacterial interactions in the human gut and how they have influenced human medicine. If allowed to proceed unchecked, V. coralliilyticus has the potential to wreak widespread havoc in the world's oceans.

- Innovation project

Same tap. 98% less water. The *Product* is the world's most extreme water saving nozzle. It installs easily into your existing tap. By atomizing water we can use 98% less water and still retain full functionality. And if you need a little more, then you switch to our regular saving mode. Still 75% savings, but all the water you need. Mist & Save Mode Mist & Save Mode Fits into your existing tap. Super easy installation. 30 sec. Pays for itself in a couple of months! Multiple finishes and sizes. Lead Free Eco Brass Perfect for kitchen and bathroom taps everywhere. In your home, your boat, at the office, in your vacation home or wherever you have a tap and want to save water. Water stress is a truly global issue affecting over one billion people today, and an estimated 3 billion in 2020. It is a problem we need to do something about. This is our small contribution to this huge issue. project video thumbnail PLAY The old solution for saving water has been to restrict the flow of water. But that only works up to a point. When you're left with only a drizzle, you need a shift in technology. We looked at the problem from another perspective. Instead of restricting water, we wanted to use as much of the water coming out of the tap as possible. The issue with regular taps is that you only use a fraction of the water coming out of your faucet. It bounces of the surface of your hands or plates. Or even worse, it just passes right by and straight down the drain. project video thumbnail PLAY When atomizing the water we break it up into millions of tiny droplets. Creating a high speed, heavy mist, shooting out of your tap. This increases the surface area of the water drastically and makes it possible for you to come in contact with almost all of the water coming out of your tap. project video thumbnail PLAY The result was even more extreme than we thought. We could have full functionality in washing hands, greens, doing dishes, brushing teeth etc, with only 2% of the water compared to a standard saving tap! One big issue. 2% is not so great when it takes 2 minutes to fill a glass of water. That's why we've developed a switch to a more regular Saving Mode. You still save 75% compared to your old tap, but you get all the water you need. Perfect for filling glasses, pots and pans. project video thumbnail PLAY Being good to the environment should not have to mean being bad at design. The faucet is part of our interior design, something we spend a lot of money on. So, if it doesn't look good sitting at the end of your tap, then it's just going to end up in some drawer. And there it won't do much good at all. That's why we've spent a lot of time on the design of the Product. We wanted it to stand out and make a statement, but at the same time it needed to look as an integrated part on a variety of different faucets. Finally, we ended up with this drop shape. It clearly makes a visual statement at the same time as it makes it easy to switch between Mist and Saver Mode. First of all, we think you

should feel great about having saved the planet a bunch of water. But lets talk specifics. Even compared to the lowest limit of the Water Sense US standard, the Product saves you up to 98%. And except for saving water, that means less energy and emissions to heat and transport the water. That is great for planet Earth. But it is also great for you. For an average household in Europe this translates to savings of €203/year. In US that number is around $255/year. Basically, you've just bought a great looking product that pays for itself within a couple of months. After the Platform campaign we will contact you so you can choose the finish and size you like for your very own Product.The Product will be available in the finishes below. If you think it is difficult measuring your existing aerator, you can easily determine the size with the help of a nickel and dime. First remove the insert and washer from the inside of the aerator. Set a nickel on top of the aerator, and if it's almost the same circumference, the aerator is a regular size. If it's not a regular size aerator, use a dime. The dime will fit inside a junior size aerator and will sit on top of a Tom Thumb size aerator. The Product fits into your existing tap and it takes less than 30 seconds to change it. project video thumbnail PLAY Approximately 18% of the water used in our homes is water running through our taps. That is equivalent to 32 gallons per household per day. If we do the math and look at some of the most water stressed cities in the world, that means: 40 million gallons running through the taps in Los Angeles, 50 million gallons in Rio de Janeiro, 220 million in Tokyo and 240 million gallons in Shanghai. Every Day. And most of it straight down the drain. There are already millions of faucets in the world. That's why we've developed the Product to easily install into your existing faucet in just 30 seconds. By altering your existing faucet, rather than buying a whole new one, we get the same effect at a fraction of the cost. It also means lots and lots more people can buy our product. And that in turn means we can save a lot more water which is kind of the point. Saving money. Saving resources. Saving water. Sounds good to us! We've come a long way since Kaj first got the idea of atomizing water in the faucet. We have a final product, produced by the final manufacturer and we have come out and met the market. It has really been a long road, but we are so excited to finally get the Product out to you. We believe that water is a basic human right. We must find ways to get clean water to all people in the world. It is not enough just saving water. We must find ways of only using exactly what we need. That's what the Product is about. We also think water stress is such a huge issue that we must find many small solutions in order to have a chance to solve the problem. It's not a single solution problem. This is our small solution. We hope you love it as much as we do. Mikael, Kaj and Johan Mikael, Kaj and Johan We have a small core team of founders who are all experienced professionals in various fields. We also have partnerships with established contract manufacturers and parts producers, both locally in Sweden and abroad. Prof. Kaj Mickos – Inventor & Head of R&D Prof. in Innovation Technique. Has worked as a professional inventor for numerous years resulting in 14 companies and more than 30 individual patents. The mind behind the Product. Johan Nihlén CEO With a background as Marketing and Communications Manager at Swedish online bank Avanza, Johan is the one making sure we are on track. Mikael Abbhagen – Design Director Mikaels wide approach to design has taken him through clients such as H&M, Lindex, Heineken and The Swedish Army. Today he is responsible for the design of both Altered: communications and the Altered: Nozzle. Tommy Lundqvist – Prototyping & Development Seasoned engineer with thousands of prototypes and several patents under his belt. Tommy is the one who's building our series of prototypes of the Product. Mikael Palmhag – Sales & Supply Chain With a background as Managing Director for Linksys Europe, Mikael is responsible for setting up our global sales and supply chain organization. Viktor Tell - Partner Retail Guru and Co-Founder of Happy Socks. Risks and challenges Creating a new product is inherently risky, with unseen challenges that inevitably spring up over the course of development. However, we have already been testing and iterating for over 2 years. We have developed multiple generations of prototypes and have today a working final product that is produced by the final manufacturer. We will continue to quality control and test all products, but we are confident we will be able to develop the Product according to plan. With that said some challenges might surface that can create delays. A large order will stress our manufacturer and supply chain. This might create delays. The timeplan in this campaign is built on the manufacturer production time of 5-6 weeks. Also, even though we work with established contract manufacturers and parts producers there is always a chance that something might go wrong. However, we are an experienced team and we're using industry standard technology and processes. We are confident we can address any issues as they come up and we have built in redundancies in both our production and our supply chain. The Product works. We have put it in the hands of hundreds of people, collectively testing it for thousands of days. We have the solution, we have the process in place and with your help we can get this product out in the world. Don't be a drainer. Let's tap out the drought! Learn about accountability on Platform FAQ Does it fit my tap? How can I check? Can I get another quantity than is written in the pledge? Does it really work? 98% sounds impossible. Do you really get clean with mist? What pressure does it require? Does it get wet outside the sink? What about Hardwater, Sediment and Limescale build up? Can I get another coating/colour than the ones you've listed? What is the retail price? Ask a question Report this project to Platform

- Non R&I project:

Childhood was a much simpler time, when you didn't have a care in the world and you could spend your days daydreaming at School about what it would be like to be a Pokémon Master. You could whip out

your Gameboy Color™ on the way home and run around the Safari Zone trying to catch Chansey before that dreaded buzzer sounded. Then you could come home and catch up with Ash, Misty, Brock and Pikachu on TV. Pokémon was a such a unique story that captured the hearts and minds of children all over the world – millions of people either watching, playing or trading in the world of Pokémon. We were those kids, and we loved every minute of it. Oh how times have changed. Growing up, studying, working and generally being a responsible adult tend to get in the way of your childhood loves as you get older.

We want to take a trip down memory lane, re-imagine the Pokémon Universe – but in live action. We loved the original 'Indigo League' series, and with the backing of this project we would like to make a 30-minute fan-made, non-for-profit short film with some sweet acting, awesome Pokémon animations and of course some kick-ass Pokémon battles.

ANNEX 6 DATA SUMMARY FOR PLATFORM DATA ANALYSIS

Field name	Observations	Min	Max	Average	St. dev.
Campaign Goal (in euros)	263,781	1	100000000	13,677.45	405962
Funded projects	263,781	-	-	0.57	.49367
Total funding raised (in euros)	263,781	1	10300000	8,136	97601
Total backers	263,781	1	91585	206.9856	1164.978

ANNEX 7 ONLINE SURVEYS

Online surveys aim to identify and analyse the role of AF for R&I, including bottlenecks and drivers from platform managers as well as current and potential fundraisers. The survey of platform managers provides a quantification of the key issues that platforms face, including cross-border activities, also highlighting potential issues to be further explored through in-depth interviews. The survey of current and potential fundraisers aims at gathering evidence on the barriers that innovators using alternative finance have to face, and on the different funding systems used for different needs. In addition, both surveys provide answers for a better understanding of the role of alternative finance for R&I (Objective 1).

In this regard, two distinct questionnaires have been developed – one for platforms and one for fundraisers. The latter contains separate questions for current and potential users.

Survey of platforms

In order to reach platform managers, the following steps have been taken:

1. As a result of the mapping of crowdfunding platforms, we identified a total of 545 alternative finance platforms. Out of these, we selected and gathered the contact emails from 232 generic platforms or platforms specialised in R&I;

2. We sent an email introducing the validated questionnaire to all the emails collected. The first email was sent on 13/04/16;

3. We followed up the individual responses gathered, and launched three additional reminders changing the title of the email in an attempt to capture the attention of the respondents. The reminders were sent on the 25/04/16; 23/05/16 and 1/06/16;

4. Finally, in close collaboration with ECN, specific emails were sent to ECN members and their network trying to engage them in the project. This step included the dissemination of the paper questionnaire during a conference.

As a result of these steps, we established contact with 45 out of 234 platforms (19% response rate). This response rate is higher than expected from this type of survey.

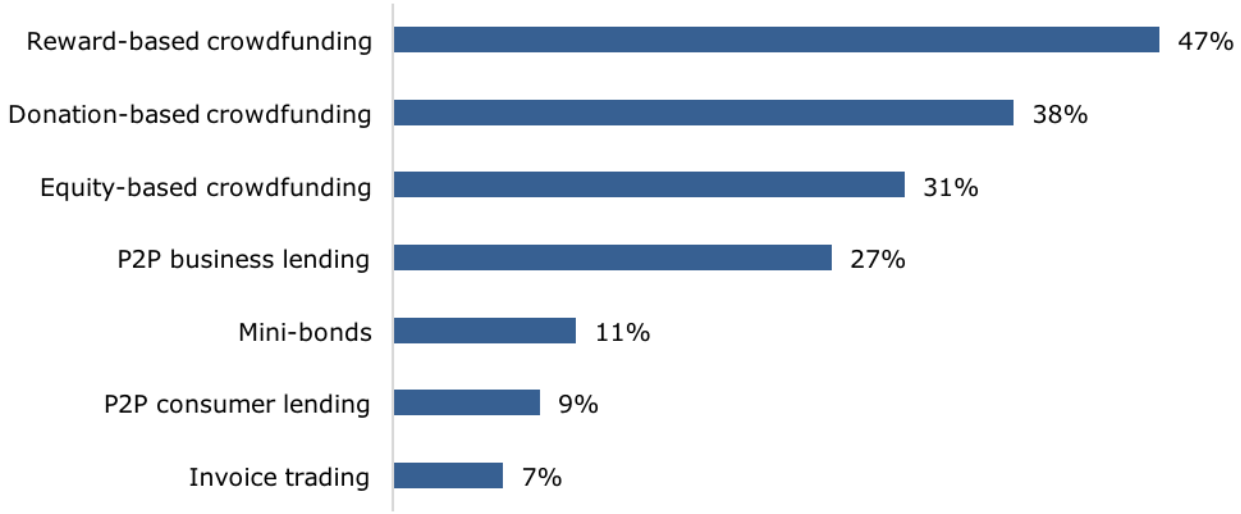
Survey of platforms

Most of the platforms are autonomous, profit-oriented companies (73%), followed by non-profit companies (including foundations, associations, semi-government) (11%). Only a minority of companies surveyed include a branch of another profit-oriented company or a subsidiary of another profit-oriented company (4%, respectively). The majority of platforms surveyed were established in France (n=9), followed by United Kingdom and Spain (n=6), Germany and the Netherlands (n=5), and Switzerland (n=2). One platform was established in each of the following countries: Sweden, Romania, Cyprus, Portugal, Poland, Norway, Italy, Ireland, Greece, Belgium, Austria, and Australia.

With regard to the annual turnover in the last financial year, the majority of the platforms indicated an annual turnover of up to EUR 500,000 (78%). About 10% of the platforms indicated an annual turnover of more than EUR 1 million and up to EUR 2 million, and 2% an annual turnover in the last financial year of more than EUR 50 million. With regard to the type of projects, more than half of the platforms surveyed indicated that they were engaged in generic types of projects (51%). Less than one third of the platforms are specialised in R&I projects (31%), whilst 16% are specialised in other areas.

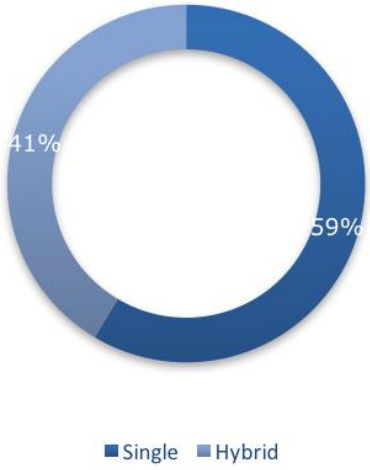
With regard to the funding mechanism, almost half of the platforms indicated they make use of rewards-based crowdfunding (47%), followed by donation-based crowdfunding (38%), equity-based crowdfunding (31%), and P2P business lending (27%). A minority of platforms engage in invoice trading (7%). About 41% of platforms are so-called "hybrid", i.e. they use more than one funding mechanism.

Figure 17 Type of funding mechanism



Source: v2. In your platform, which of the following funding mechanisms are available? Select all that apply (n=42)

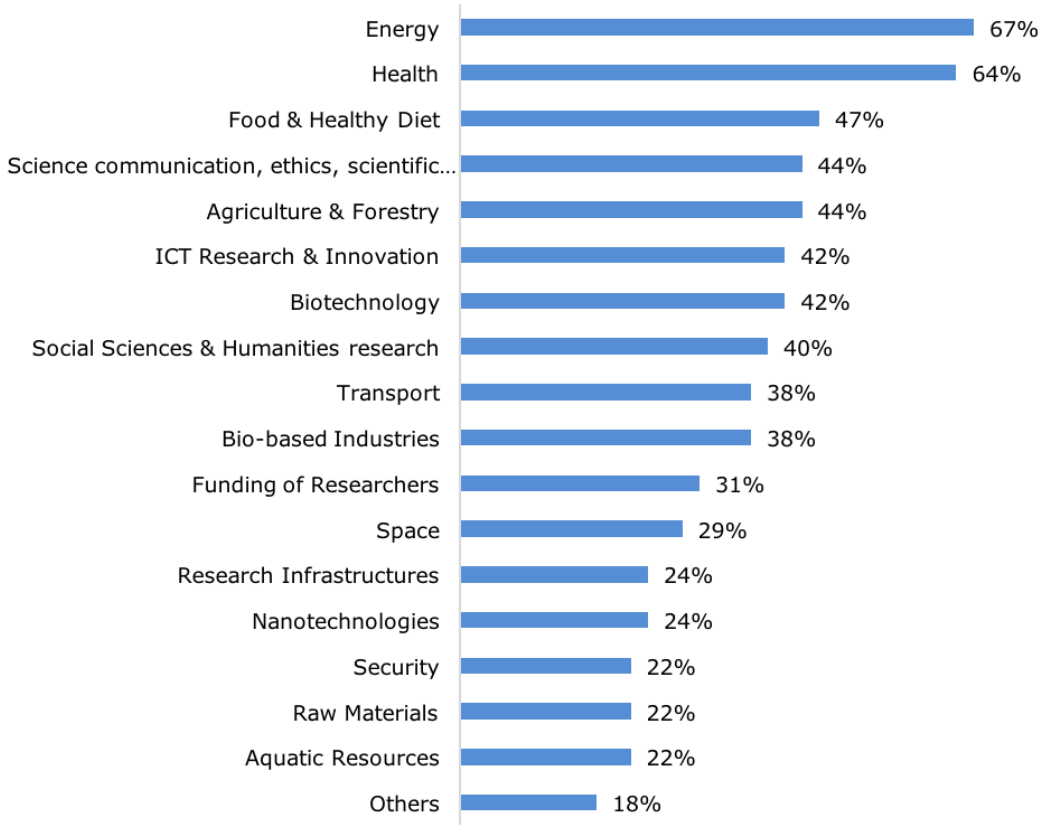
Figure 18 Type of funding mechanism



Source: v2. In your platform, which of the following funding mechanisms are available? Select all that apply (n=41)

As for the type of funding model, about two thirds of the platforms indicated the use of "All or nothing" models (76%). About 31% of the platforms use a "Keep it all" funding model. The majority of the platforms fund projects in the field of Energy (67%), followed by Health (64%), Food and Healthy Diet (47%), Science communication, ethics, scientific education (44%), and Biotechnology (42%). Projects in the field of Security, Raw Materials and Aquatic Resources are less prevalent (22%).

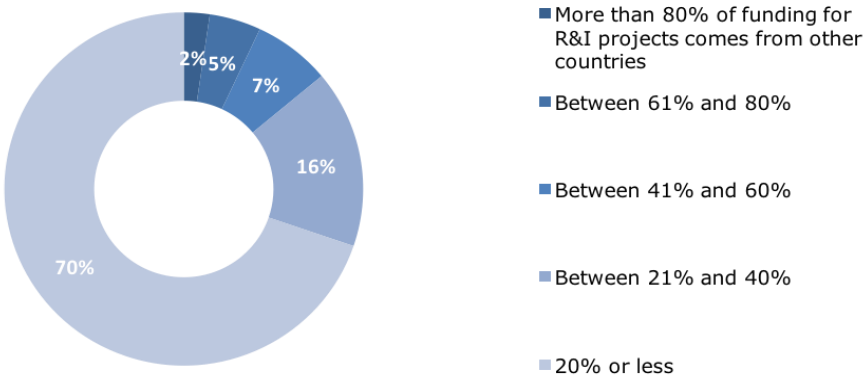
Figure 19 Projects funded fields



Source: v17. Does your platform fund projects in the following fields? Select all that apply. (n=42)

The vast majority of platforms (70%) indicated that the percentage of funding coming from a different country is less than 20%.

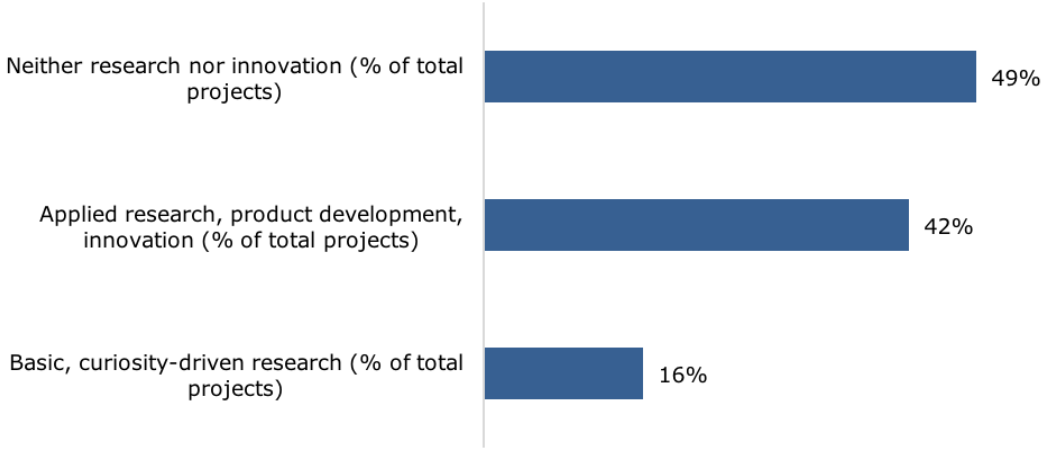
Figure 20 Cross-border transaction



Source: question v20. Typically, in research and innovation (R&I) projects, what is the percentage of funding coming from a different country than the one your platform is established in (cross-border)?

On average, surveyed platforms hosted 245 projects throughout 2015, with a maximum of 6,288 projects (from one rewards-based platform) and a minimum of 1 project (from several platforms using different mechanisms). The median is 13 projects. These figures include unsuccessful projects as well as successfully funded ones. On average, the share of basic research projects is 16% of the total number of projects. On average, the share of applied research and innovation projects is 42% of the total number projects.

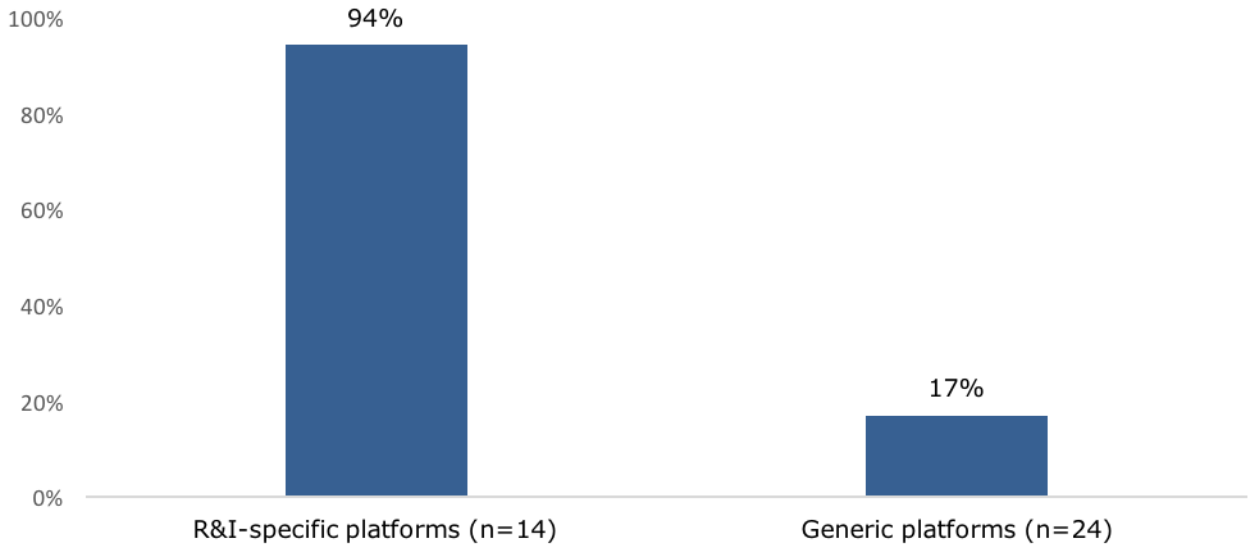
Figure 21 Average type of R&I projects launched as % of total projects



Source: v15. What is the percentage of projects launched through your platform for research and innovation (R&I)? Please provide an estimate. (n=42)

Predictably, the percentage of projects that, on average, focus on R&I, changes according to the type of platforms. In research-specific platforms, about 94% of the projects support R&I. In generic platforms, it is about 17% of projects.

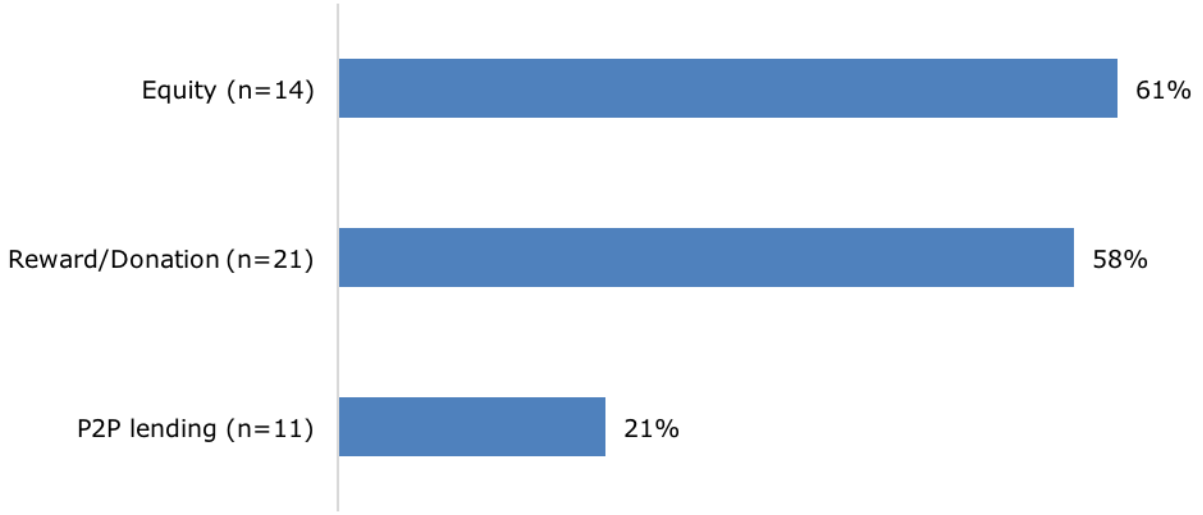
Figure 22 Average % of R&I projects launched by type of platforms



Source: v15. What is the percentage of projects launched through your platform for research and innovation (R&I)? Please provide an estimate. (n=42)

When broken down by funding mechanism, R&I projects seem rare (about 21% of all projects) in P2P consumer and business lending platforms, and more frequent in equity (about 61%) and donation or rewards platforms (about 58%).

Figure 23 Average % of R&I projects launched by funding mechanism

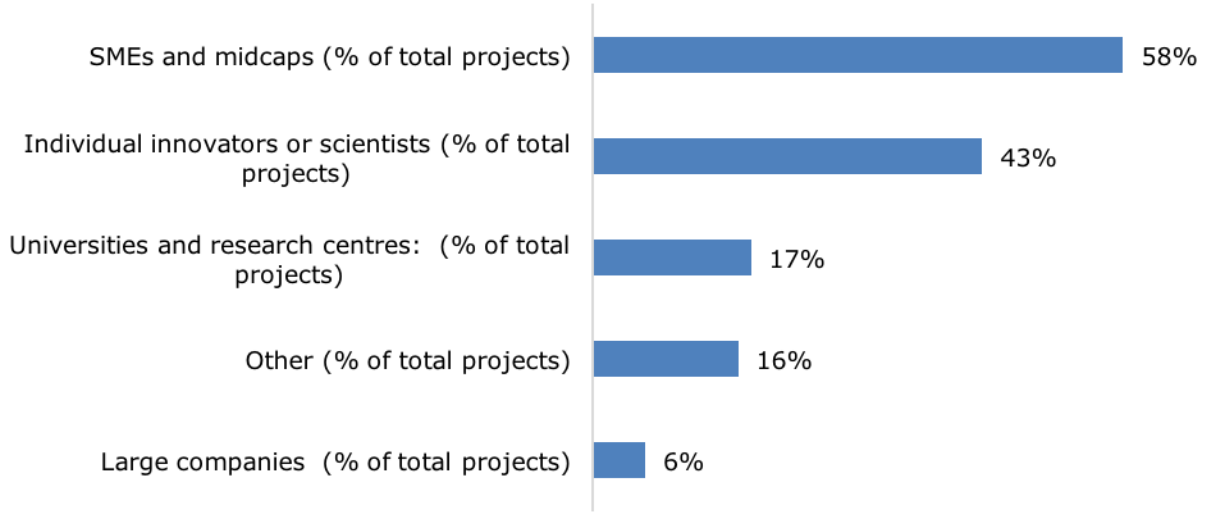


Source: v15. What is the percentage of projects launched through your platform for research and innovation (R&I)? Please provide an estimate. (n=42)

In order to estimate the amount of funding that goes to R&I, the sub-sample formed by those respondents who (1) did not qualify as non-R&I, (2) disclosed their financial data and (3) estimated the share of R&I consists of 24 observations. Within the sub-sample, the total raised in 2015 amounts to about EUR 95.6 million. This figure is equal to 2% of the EU market size estimated on the Cambridge-EY report. The average raised in 2015 is about EUR 3.9 million, with a median of EUR 165,000. The total raised that goes to R&I, obtained by multiplying the self-reported total raised in 2015 (Q7) by the self-reported share of R&I (Q16), amounts to about EUR 48.6 million, or about **51%** of the total raised by the sub-sample in 2015. Amongst equity platforms (n=14), the share of budget that goes to R&I is about 69%. Amongst donation or reward-based platforms (n=21), the figure is about 50% and amongst P2P lending platforms (n=7), it amounts to about 29%.

Of all R&I projects launched within platforms, on average 58% were launched by SMEs and midcaps. On average, 43% of total R&I projects were launched by individual innovators or scientists.

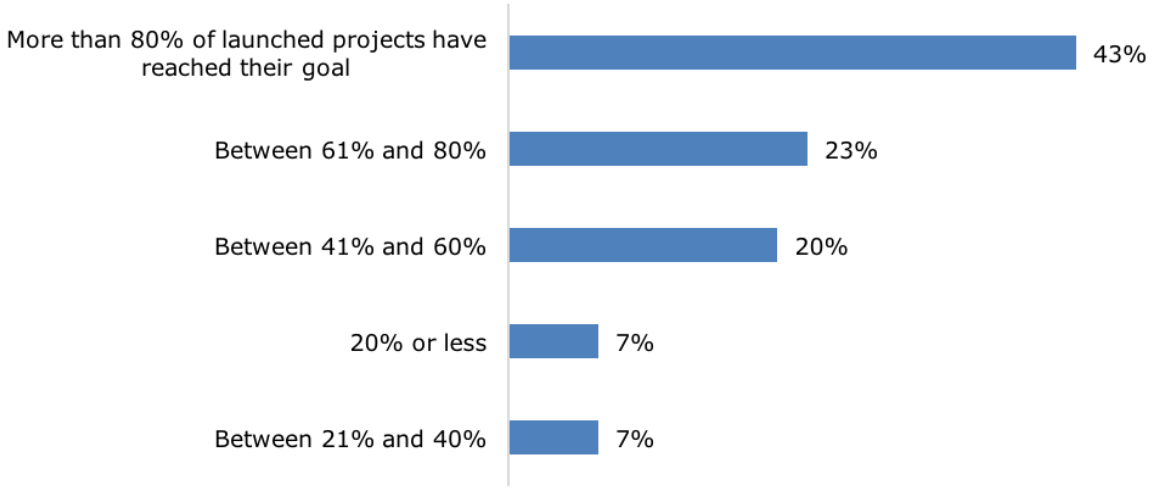
Figure 24 Type of R&I fundraisers (% of R&I projects)



Source v18. Of the R&I projects on your platform, how many are launched by the following organisations? Please provide an estimate.

The average number of investors by platform is 42,938 (n=39). The median platform has 1,300 investors. On average, 5% of investors are institutional investors (n=35). More than half of platforms reported not having institutional investors registered. Almost half of the platforms surveyed (41%) indicated an overall success rate of more than 80%. Only 7% indicated a success rate of between 21% and 40%, and 20% or less, respectively.

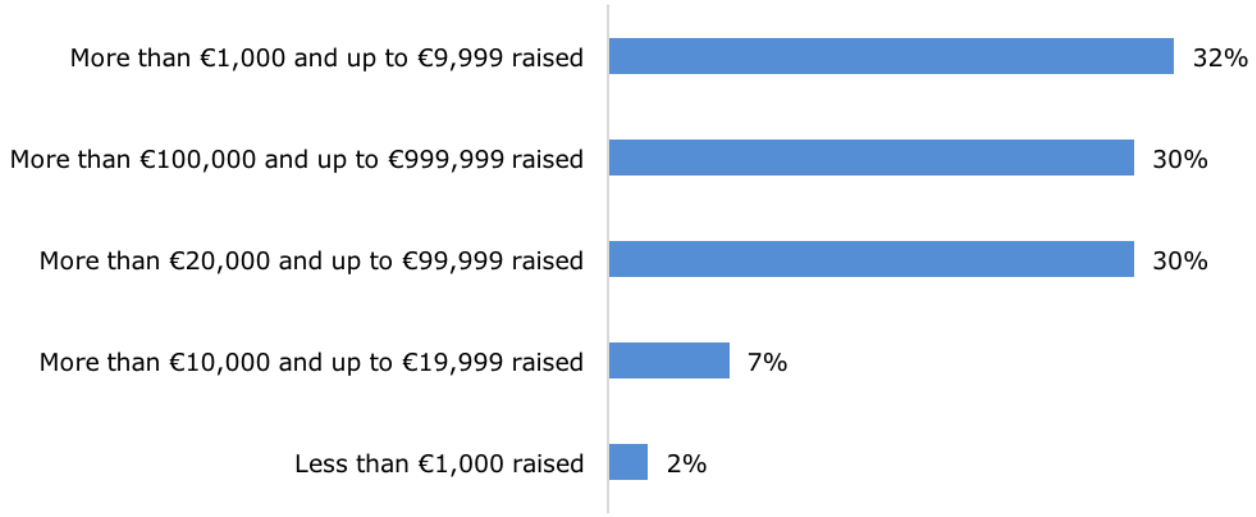
Figure 25 Overall success rate



Source: v9. What is the overall success rate of your platform? In other words, how many projects have reached their goal so far? (n=44)

About 32% of platforms typically raise between EUR 1,000 and up to EUR 9,999 per project. About 30% of platforms typically raise between EUR 100,000 and up to EUR 99,999. Equally, 30% of platforms typically raise between EUR 100,000 and up to EUR 999,999 per project.

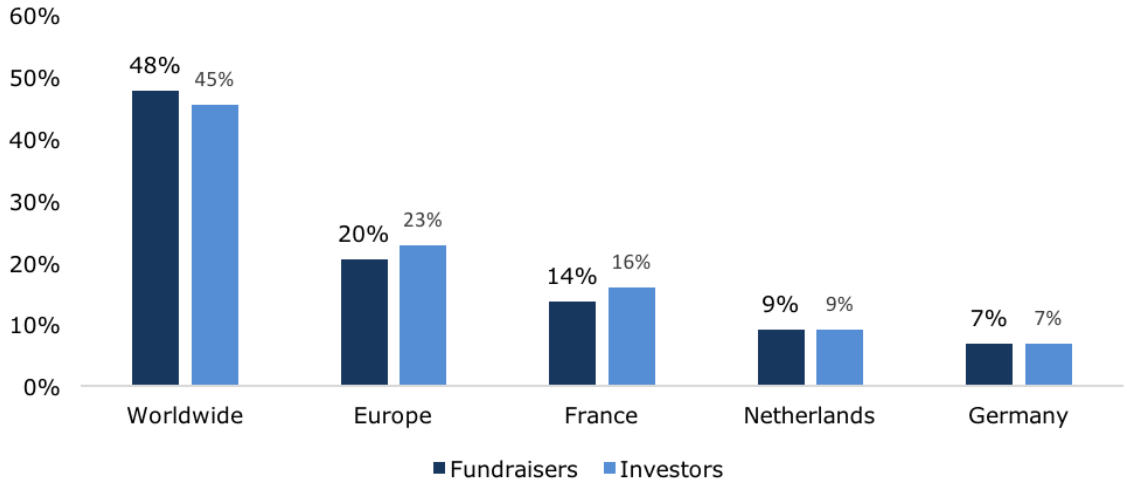
Figure 26 Estimate funds raised per typical project



Source: v10. Typically, how much does a successful project raise? Please provide an estimate (n=44)

With regards to the **dynamics** of platforms, the majority of platforms include a geographical coverage that spans to investors worldwide (45%), followed by investors from Europe (23%). Only 2% of platforms include a geographical coverage of investors that spans from China to the US (2%, respectively). Similar results apply to fundraisers.

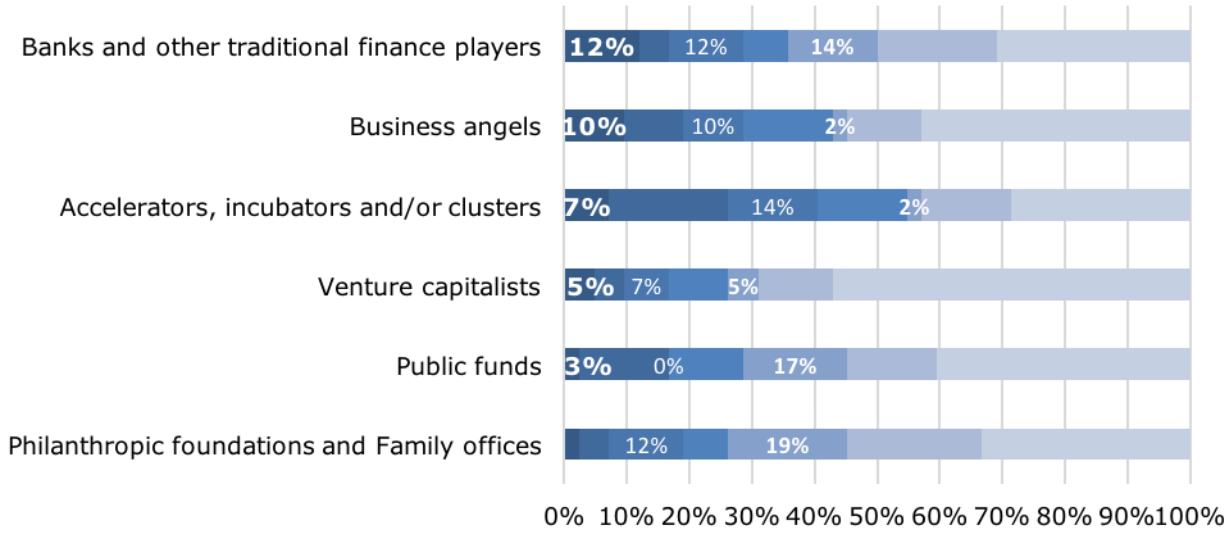
Figure 27 Platforms geographical coverage



Source: v5. In which of the following countries/areas is your platform available to investors (including backers, donors, lenders)? (n=44) *Source: v6. In which of the following countries is your platform available to fundraisers (including entrepreneurs, researchers)? (n=44)*

In terms of **Ecosystem** (Figure 28), platforms indicated to be collaborating to a very large extent mainly with banks (12%), business angels (10%), accelerators, incubators and/or clusters (7%), venture capitalists (5%), Public funds (3%) and philanthropic foundations and family offices. When considering collaboration to a medium-large extent, accelerators and business angels become more important.

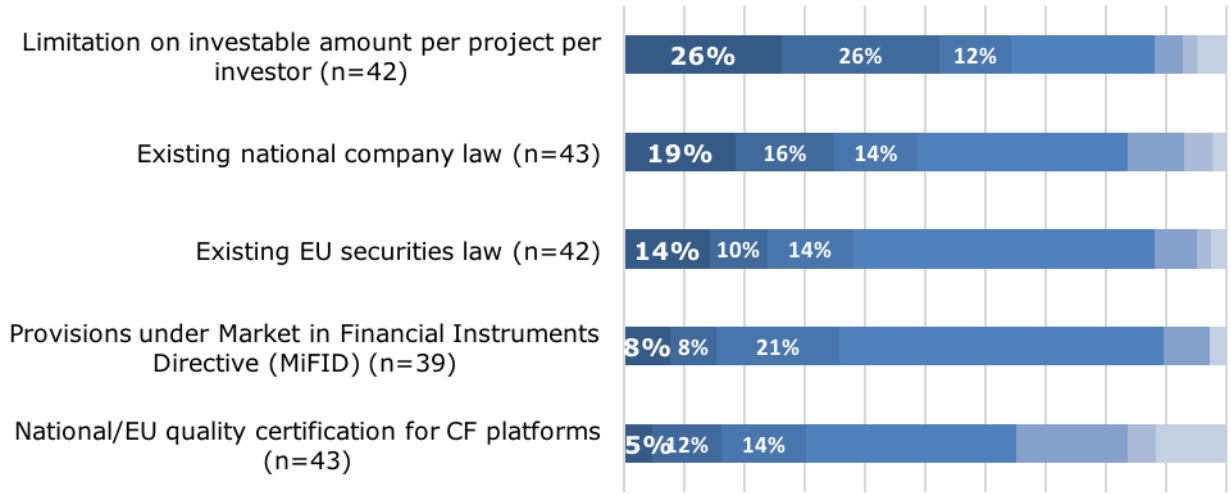
Figure 28 Ecosystem



Source: V14. To what extent is your platform collaborating with…? (1=to no extent; 7=to a very large extent); n=42

In terms of bottlenecks and drivers, a major **barrier** has been indicated in the limitation of investable amount per project per investor (26% of respondents), followed by existing national company law (19%), and by the existing EU Securities law (14%).

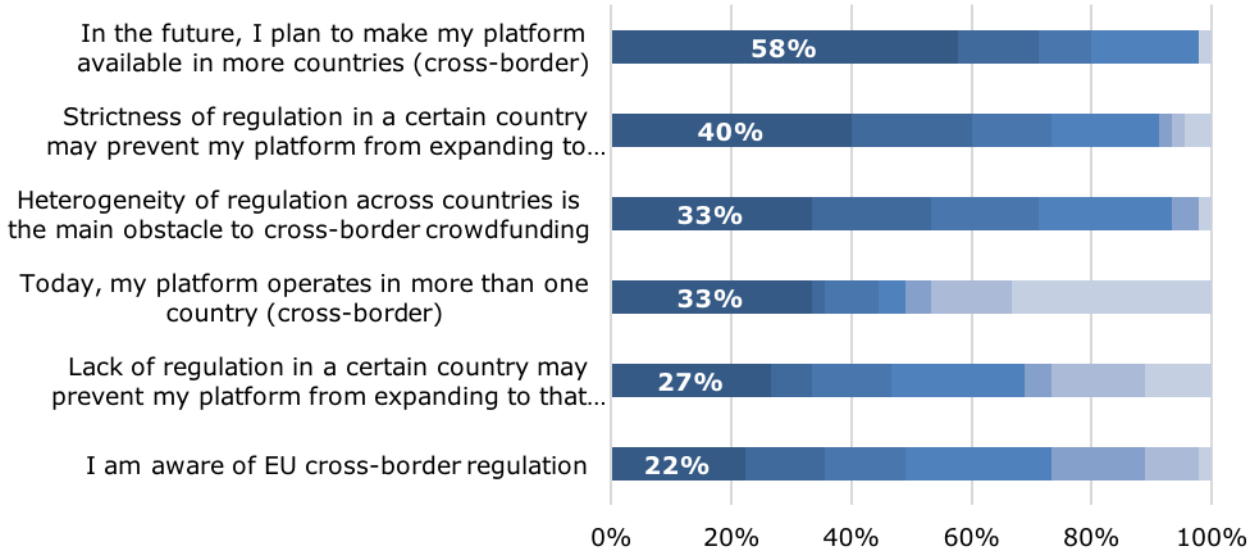
Figure 29 Regulation: drivers and barriers



Source: V21. Does regulation impact the growth of crowdfunding? Please state to what extent do you see the following provisions as "barriers" (1) or "drivers" (7) to the spread of crowdfunding platforms.

With regard to factors related to cross-border activity, the majority of respondents indicated that they plan to make the platform available in more countries (58%). Only 22% indicated they were aware of cross border regulation.

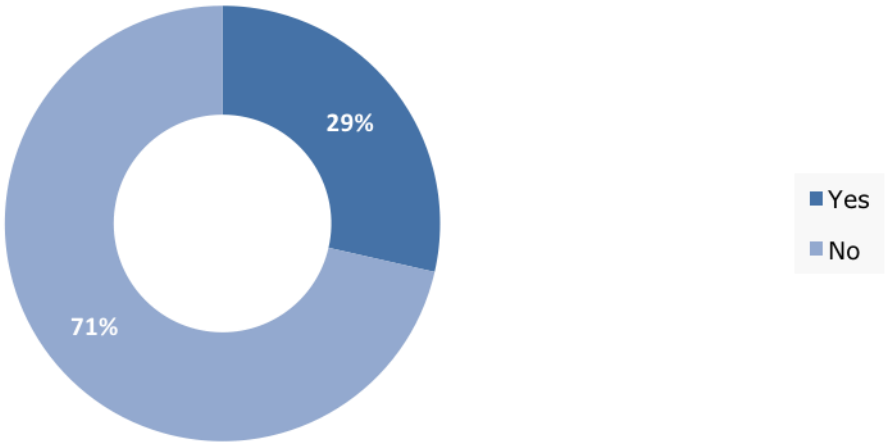
Figure 30 Cross-border: drivers and barriers



v.23 Does regulation impact the growth of crowdfunding? Please state to what extent (1=Totally disagree; 7= totally agree) do you see the following provisions as "barriers" or "drivers" to the spread of crowdfunding platforms. (n=45)

Finally, just 29% of the respondents claimed that their platforms insure lenders against the risk of default by borrowers.

Figure 31 Platforms that insure lenders against default risk

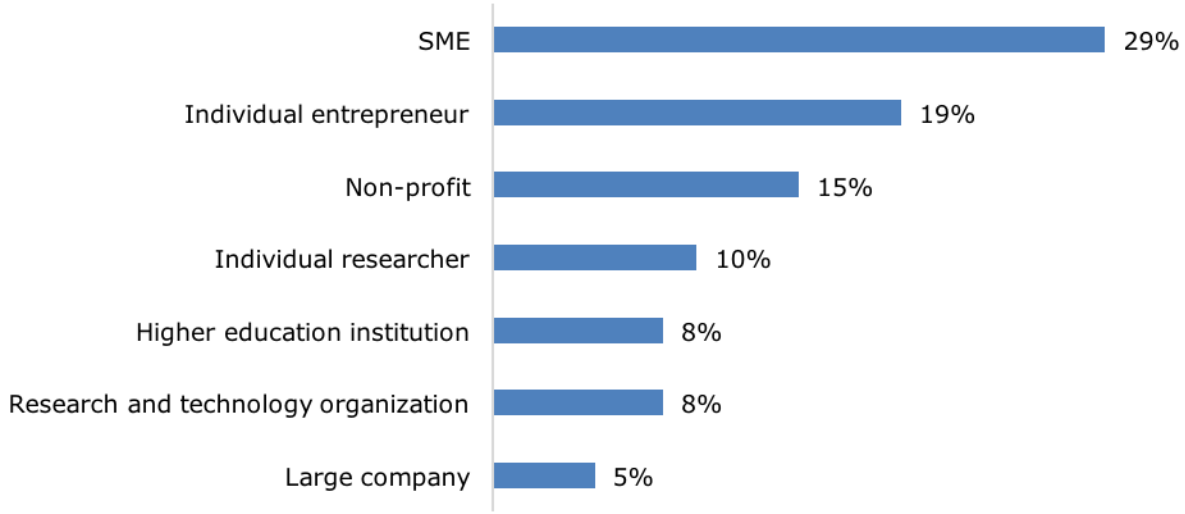


Source: v13. Does your platform insure lenders against the risk of default by borrowers? (n=14)

Survey of users

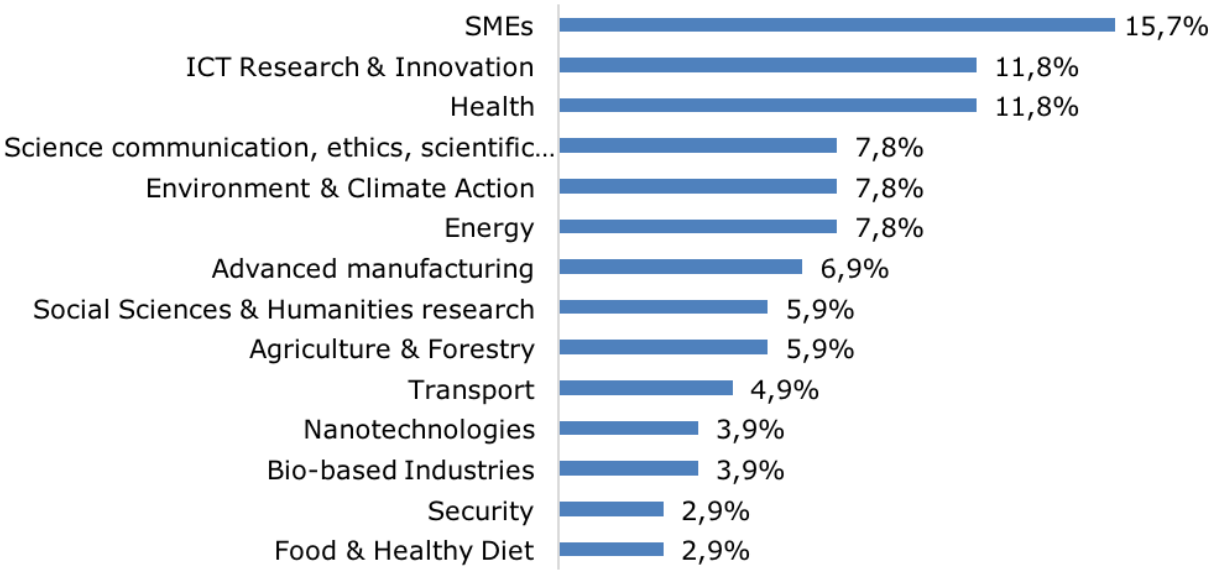
For the survey of users, we have gathered 16 current and 39 potential fundraisers. Overall, 37% of the respondents were female. Respondents were aged from 18 to 70 years (with an average of 38 years and a median age of 35 years) and highly educated (74% holding at least a Master's degree). About 29% of respondents worked for an SME, whilst 19% were individual entrepreneurs.

Figure 32 Type of organisation of the fundraiser



Source: v5. How would you best characterise your project's organisation? (n=16)

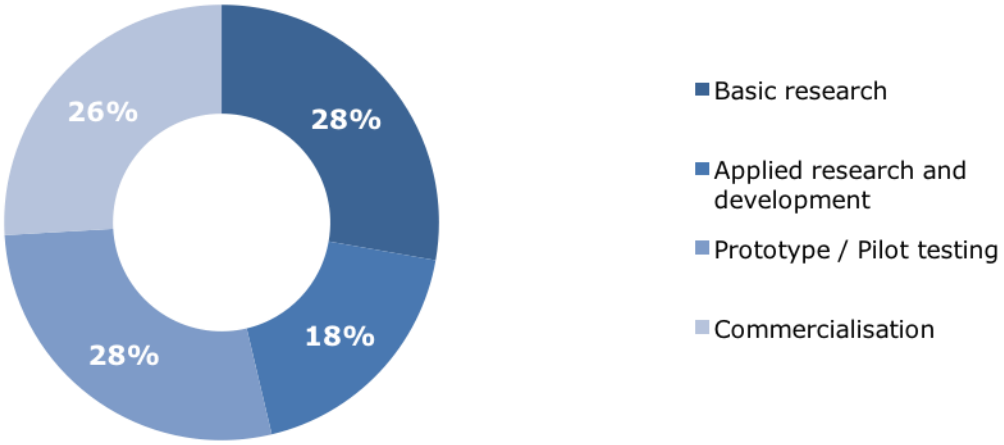
Figure 33 Most common project fields



Source: v22. Does your project belong to one or more of the following fields? Select all that apply (n=62)

The projects at the centre of the current (or future) crowdfunding campaigns of the respondents are fairly equally distributed in terms of the stage of the innovation cycle.

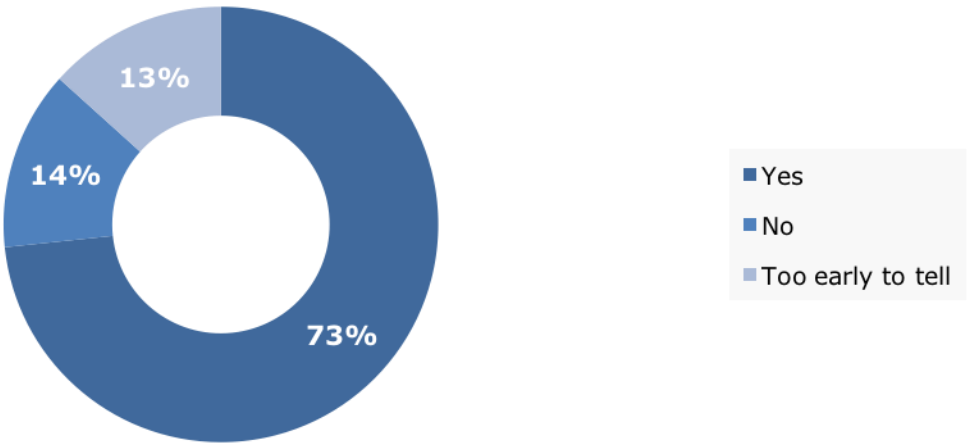
Figure 34 Stage of Innovation of the Project



Source: v21. Which of the following stages of the innovation cycle applies to your project? (n=54)

Amongst **current fundraisers**, 69% had used crowdfunding once, whereas 31% had launched more than one campaign. Previously launched campaigns were mostly donation-based (39%) and rewards-based (33%), followed by equity-based (22%). More than half of the current fundraisers have used all-or-nonthing models (56%). About 63% of fundraisers succeeded in their campaign, whereas more than two-thirds (73%) were satisfied with their crowdfunding experience.

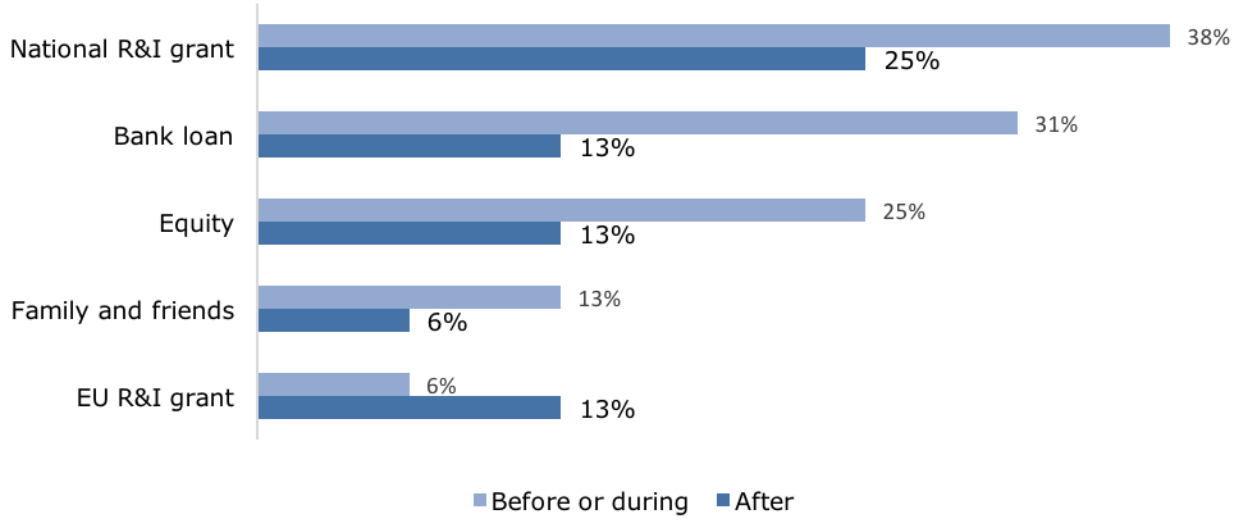
Figure 35 Satisfaction of the fundraisers with their crowdfunding experience



Source: v35. Are you satisfied with your crowdfunding experience? (n=16)

About 63% of fundraisers tried to get funding from other sources before (or during) crowdfunding; less (50%) did so after crowdfunding. A national research grant was the most common source of funding both before (38%) and after (25%) crowdfunding, followed by bank loan (31% before, 13% after).

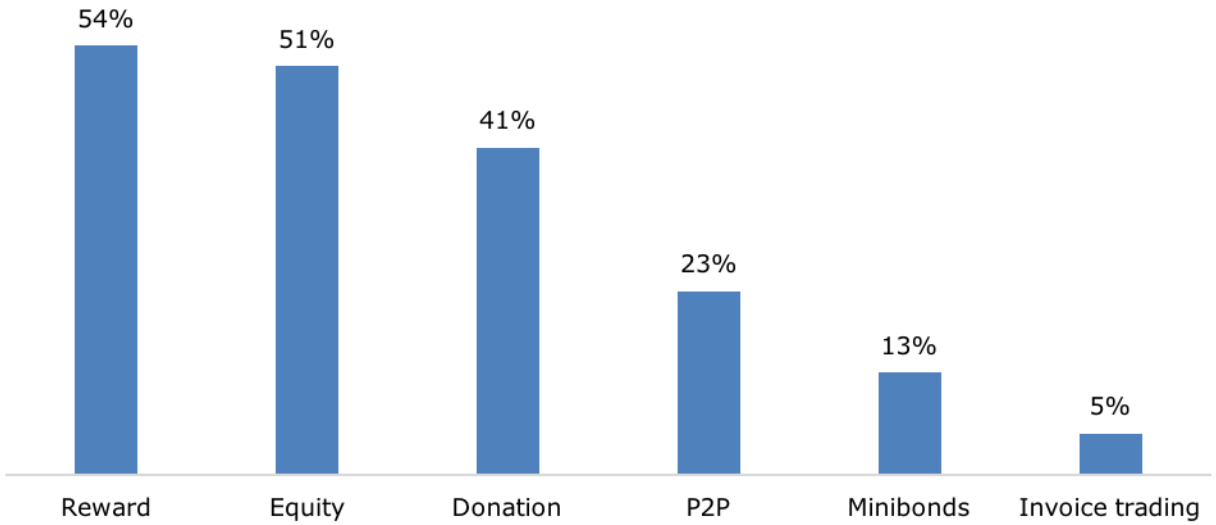
Figure 36 Other sources of finance beforend after crowdfunding



Source: v14. Before or during the campaign, have you tried to get funding from other sources? v15. After the campaign, have you tried to get funding from other sources? (n=16)

Amongst **potential fundraisers**, more than half would like to launch a rewards-based (54%) or an equity-based campaign (51%). The two most cited platforms on which to host the future campaign were Kickstarter (21%) and Indiegogo (14%). About two-thirds of potential fundraisers (69%) have tried to get funding elsewhere, mostly from national (38%) or EU grants (28%).

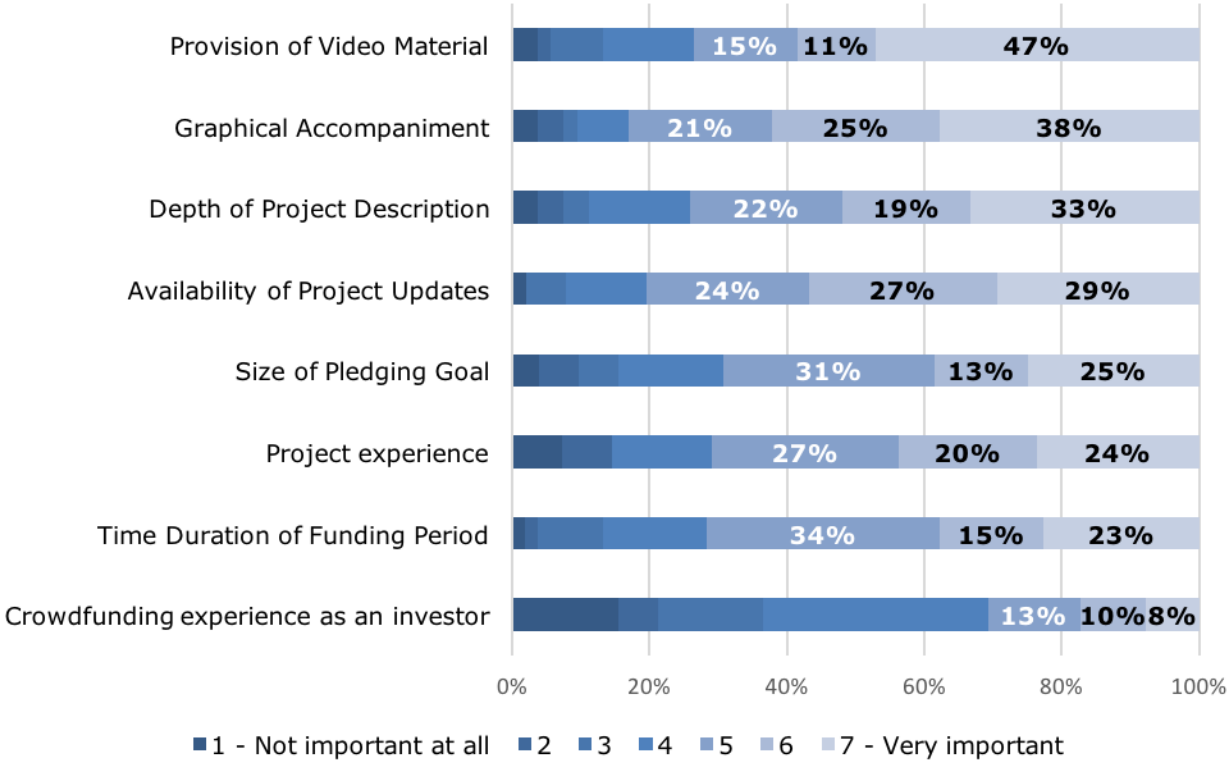
Figure 37 Desired funding mechanism



Source: v16. What type(s) of campaign would you like to launch? (n=39)

With regard to **drivers** for the success of a crowdfunding campaign, many users pointed to project-specific media: nearly half of respondents rated as "very important" the provision of video material (47%), whereas 38% mentioned graphics and 33% rated the depth of project description. Other project-specific factors, such as the availability of project updates and the size of pledging goals, were rated as very important by 29% and 25% of respondents respectively. Conversely, funder-specific factors seem less relevant to respondents (only 8% rated the funder's previous experience as an investor as "very important").

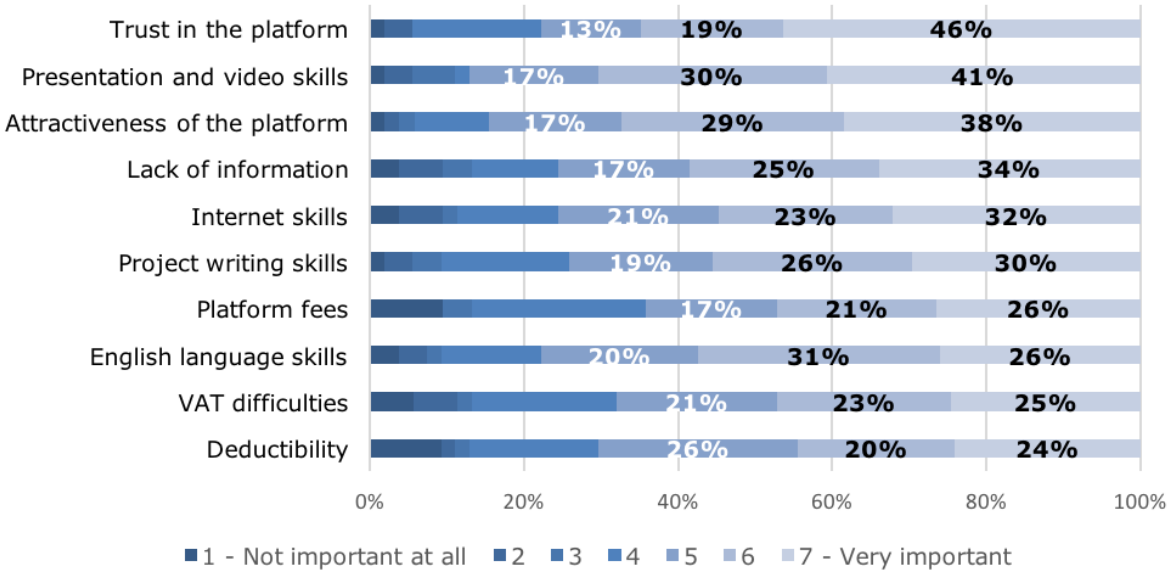
Figure 38 Drivers of a crowdfunding campaign



Source: In your opinion, how important are the following "drivers" for projects to list on crowdfunding platforms? (n=55)

With regard to **barriers** for the success of a crowdfunding campaign, about 46% of respondents believe that a platform's trustworthiness is "very important". Other platform-related factors, such as its fees and attractiveness, are rated as very important by 26% and 38% of respondents respectively. In terms of personal attributes, not having adequate presentation and video skills can be an entry barrier for a crowdfunding campaign, according to 41% of respondents – more so than internet skills (32%), project writing skills (30%) and English language skills (26%). About one-third of respondents consider lack of information as a barrier (34%); whereas regulatory factors such as VAT difficulties and deductibility are less commonly cited as "very important" (25% and 24% of users, respectively).

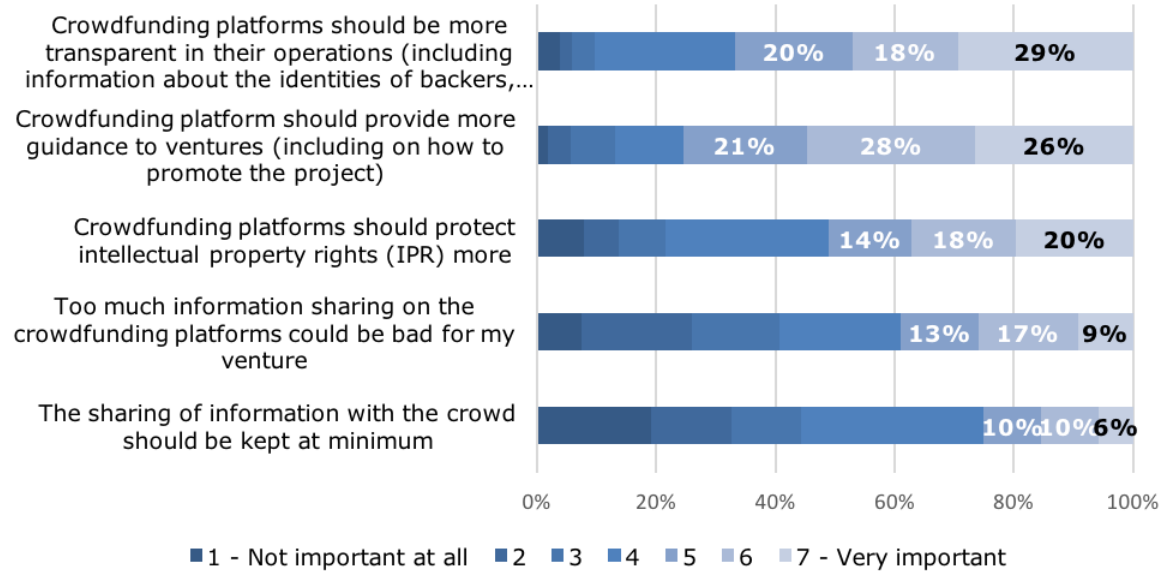
Figure 39 Barriers of a crowdfunding campaign



Source: In your opinion, how important are the following "entry barriers" for projects to list on crowdfunding platforms? (n=55)

When asked about **information**, transparency, and the actions that platforms should take with regard to these issues, nearly two-thirds of respondents agreed that, to at least some extent (and about 29% totally agreed) platforms should be more transparent and share information about their users. Similarly, only a minority of respondents (less than 40%) agreed that, to at least to some extent, with the claim that information sharing could be bad for their venture; and even less (around 28%) thought that information sharing should be minimised.

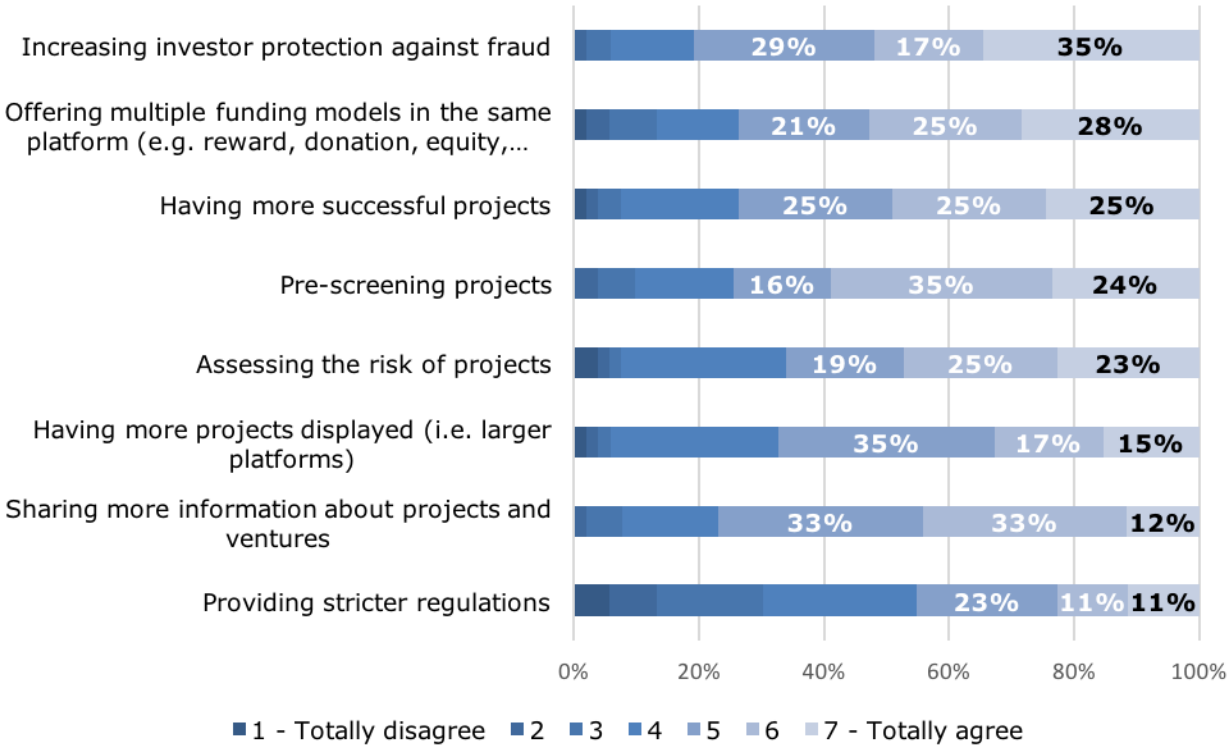
Figure 40 User perspectives on information and transparency



Source: v33. Please state how much you agree with each of the statements presented below using a scale from 1 - Totally disagree to 7 Totally agree

Finally, current and potential fundraisers were asked their opinion on what would be the most effective actions for crowdfunding platforms to attract more investors. Risk appears to be a major driver here: more than 80% of respondents agreed that, to at least some extent (and 35% totally agreed) platforms should protect investors more against fraud. Furthermore, nearly two-thirds of fundraisers agreed that platforms should conduct some sort of risk assessment (23% totally agreed) or pre-screening (24% totally agreed) of projects. Other suggestions include the possibility of offering multiple funding mechanisms (e.g. equity, reward, P2P lending) within the same platform, an option with which more than two-thirds of respondents agreed (and 28% totally agreed). Conversely, less than half of respondents thinks that platforms should provide stricter regulations (and only 11% totally agreed).

Figure 41 What platforms should do to attract more investors



Source: v34. In your opinion, which of the following would be the most effective way for platforms to attract more investors to crowdfunding?

ANNEX 8 INTERVIEWS SUMMARY AND REPORTING

During the study, the team interviewed **60 key stakeholders active in the field of AF and alternative finance and/or in R&I projects**. Before performing interviews, the study team drafted a **long list of** 193 key stakeholders from which 162 potential interviewees were selected and contacted via e-mail. Out of 162 people contacted, **60 stakeholders** replied positively, with a rate of response of **37%**.

In detail, **interviews** were performed with the following stakeholders:

- 13 regulators
- 9 users/fundraisers
- 14 investors
- 10 platforms
- 14 innovation eco-system players

Main results - Objective 1

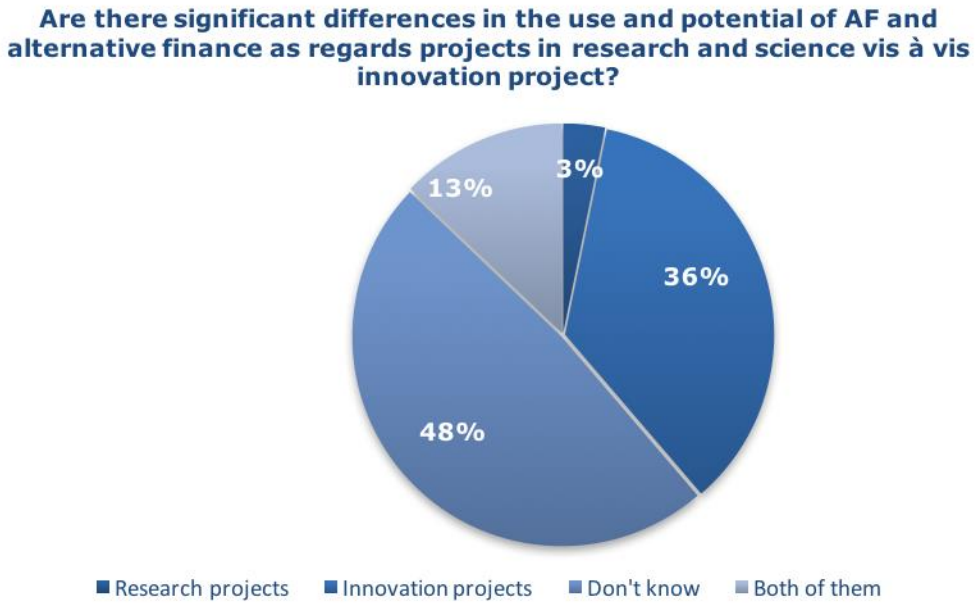
Research questions	Main finding
A31 - In your opinion, are there significant differences in the use and potential of AF and alternative finance as regards research projects vis à vis innovation project?	• There is consensus among stakeholder on the stronger potential of AF innovation projects vis-à-vis research projects
A22 - In your opinion, what types of AF or other forms of alternative finance are most appropriate for successfully funding R&I and in what circumstances?	• Research projects and Innovation projects can be successfully funded resorting to different AF models that are coherent with project's mission and level of ROI
Q57 - In which stage of the innovation cycle of an R&I project is AF and alternative finance more appropriate / successful?	• R&I projects in the commercialisation phase are more likely to succeed and be funded via AF
Q27 How would you classify your platform?	• AF platforms interviewed are mostly generic but they host some R&I projects
Q10 What is the business model of your platform?	• The majority of platforms interviewed apply commission fees on successfully funded projects
A18 - How important do you think the following factors are when deciding to invest in a R&I project or a firm or individual undertaking R&I via AF or alternative finance?	• Investments in AF are mainly driven by factors related to the R&I project as well as by the reason to invest or donate money
Q58 - In which of the following R&I "application domains" is AF and alternative finance more appropriate and likely to strongly contribute to the development of projects concerned?	• AF is very appropriate to fund projects belonging to sectors generating life-condition improvements
A4 - In bankability or investment-readiness terms, what is the riskiness of the projects concerned?	• Projects listed on AF platforms bear different types of risk that should be carefully assessed by investors
A13 - Besides AF, what other types of alternative finance, if any, are proving useful support for R&I-performing firms accessing finance?	• R&I projects in the EU can be funded via different types of innovative and successful alternative finance methods
A9 - To what extent do individuals, SMEs, large companies and universities undertaking R&I use	• AF and alternative finance in R&I are used by several actors to a different extent, with

AF? To what extent do they prefer AF over traditional methods of finance?	individuals and SMEs recurring more to such methods
A12 To what extent is 'enterprise' crowdfunding successful in fostering internal research and innovation for companies? Are any trends evident?	• The potential of "enterprise" crowdfunding has not been widely recognised by all stakeholders
A20 - On what basis do AF platforms select R&I projects?	• AF platforms usually look at the feasibility and economic impact of an R&I project before selecting and listing it
A21 How do crowdlending platforms active in R&I assess and classify the risk profile of borrowers?	• Crowdlending platforms use different methods to assess the risk profile of borrowers
A29 In your opinion, what are future trends in Fintech and how will they influence AF platforms and operations?	• New Fintech trends are emerging and impacting on the AF market, with Blockchain leading the way

The majority of stakeholders who expressed a position[9] regarding the potential of AF for research against AF for innovation, agreed that the latter has more chances of being financed through this form of AF.

Overall, a large part of the interviewees (36%) argued that AF and alternative finance have stronger potential with regard to innovative projects. Only 3% of interviewees stated that AF has a higher potential for research projects, whilst 23% of stakeholders claimed that AF has an equal potential for both the sectors.

Figure 42 Differences in the use and potential of AF for research projects and for innovation projects



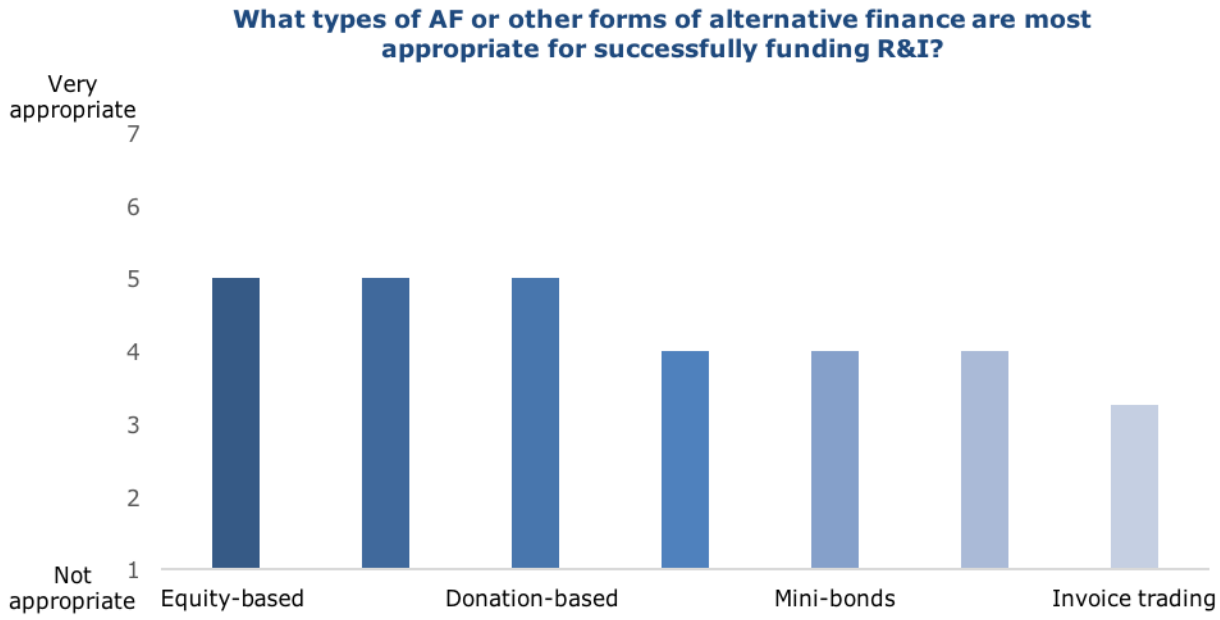
Source: Interviews (38 respondents including 14 investors, 10 platforms, 14 innovation eco-system players)

[9] As shown in the pie chart, 48% of respondents found it difficult to answer this question because they did not see any difference among the potential of AF for Research and the potential of AF for Innovation.

Concerning innovation projects and the higher potential of AF in this area, the majority of stakeholders stated that the potential of AF as a financing method is closely linked to the level of understanding of the project being promoted. Innovation projects imply that fundraisers can show a prototype or a physical product to the "crowd" and to investors, meaning that they will have more chance to understand the product and hence to finance its production. "*If you have a physical good and you can already show a prototype, it is something easier to understand. If you have a service or something that you have to imagine, obviously is more complicated*" said a Finnish Investor. Another reason stated by several interviewees is that innovation projects are more market-oriented. As highlighted by an institutional investor, for innovation projects "*the time to go on the market is much shorter and the capital requirement is much smaller than projects in research and science"*. An innovation expert observed that: "*research is on the long term and it has an open ending, meaning that you do not really know what you can get out of it. Eventually, if you have some results it is just a publication, and even if a publication is very important you cannot expect to have many people who want to fund it."* Thirdly, interviewees stressed that the teams of researchers or entrepreneurs designing one innovation project typically have very different profiles, are endowed with a diversified range of skills and competencies and are more business oriented, hence being in line with a common idea of a business model targeted to higher revenues in a shorter timeframe.

The majority of stakeholders agreed that overall, *equity-based AF* and *reward-based AF represent the most appropriate model to successfully fund R&I projects, followed by donation based AF and other forms of alternative finance* (see Figure 43).

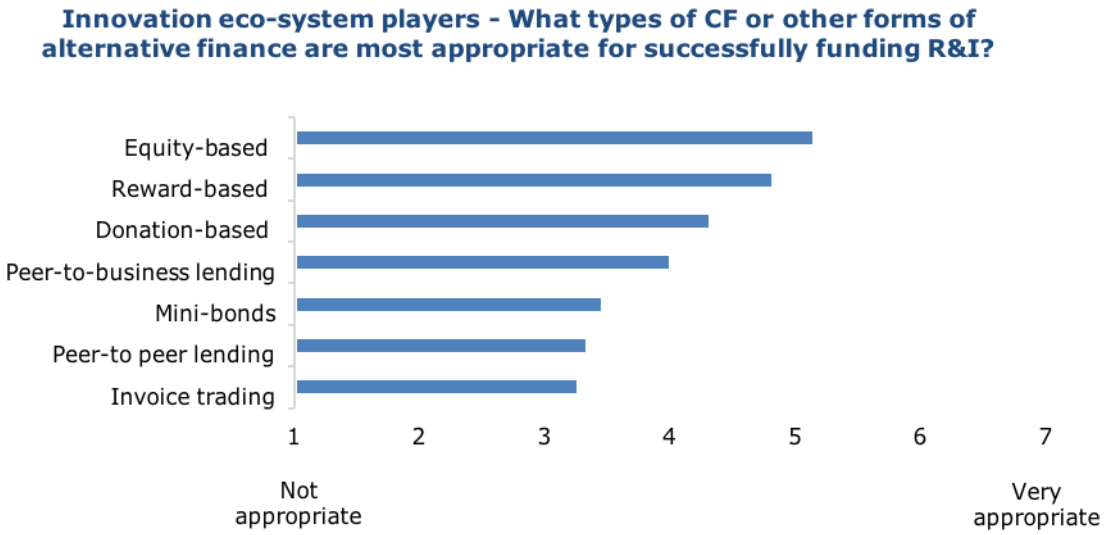
Figure 43 AF models and their appropriateness for R&I projects



Source: Interviews (45 respondents including 7 users/fundraisers, 14 investors, 10 platforms, 14 innovation eco-system players)

In particular, most innovation eco-system players explained that equity-based AF, Rewards and Donation based AF are on average the most successful model for R&I, noting that these models could lead to new opportunities for investment and experimentation, and could open up new avenues of funding for small and medium businesses and enterprises (see Figure 44).

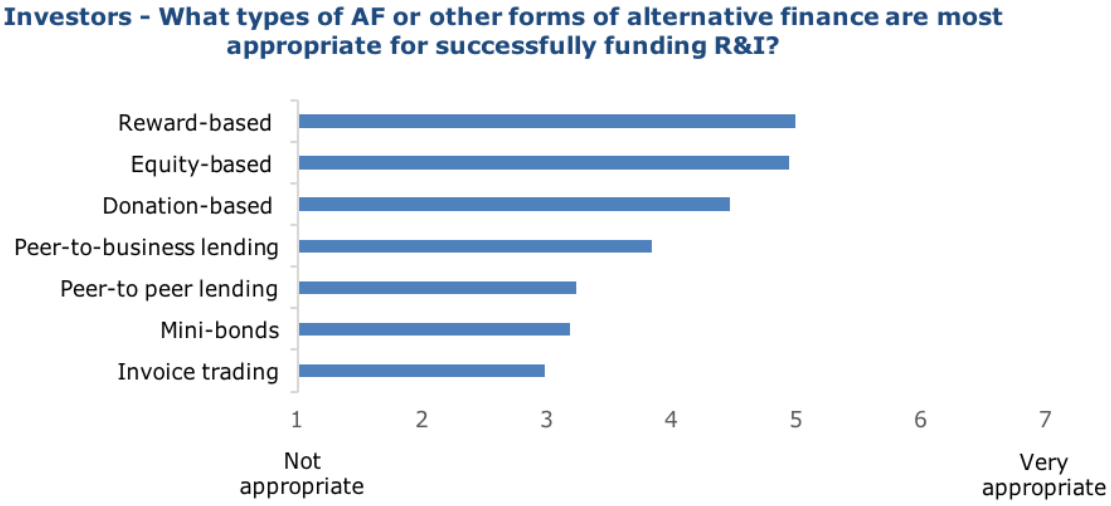
Figure 44 AF models and their appropriateness for R&I projects according to innovation eco-system players



Source: Interviews (respondents: 14 innovation eco-system players)

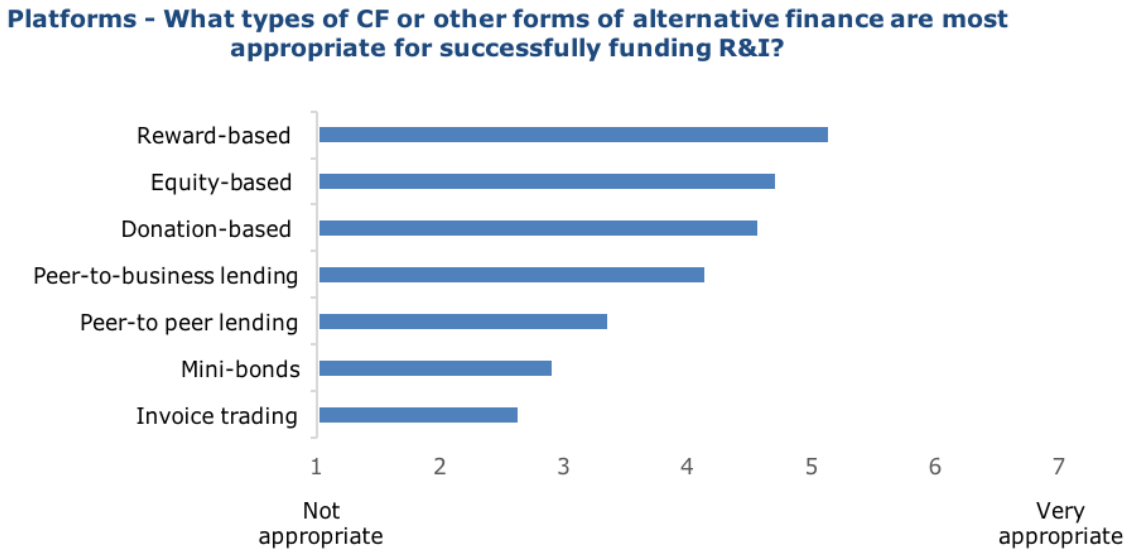
Other stakeholder categories – including platforms, fundraisers and investors – indicated on average the reward-based model as the most successful one, noting that when the perk consists of the innovative product itself, this model represents a very good way to launch the product, see the market reaction, receive feedback and improve the overall output (see Figure 45, Figure 46, Figure 47).

Figure 45 AF models and their appropriateness for R&I projects according to investors



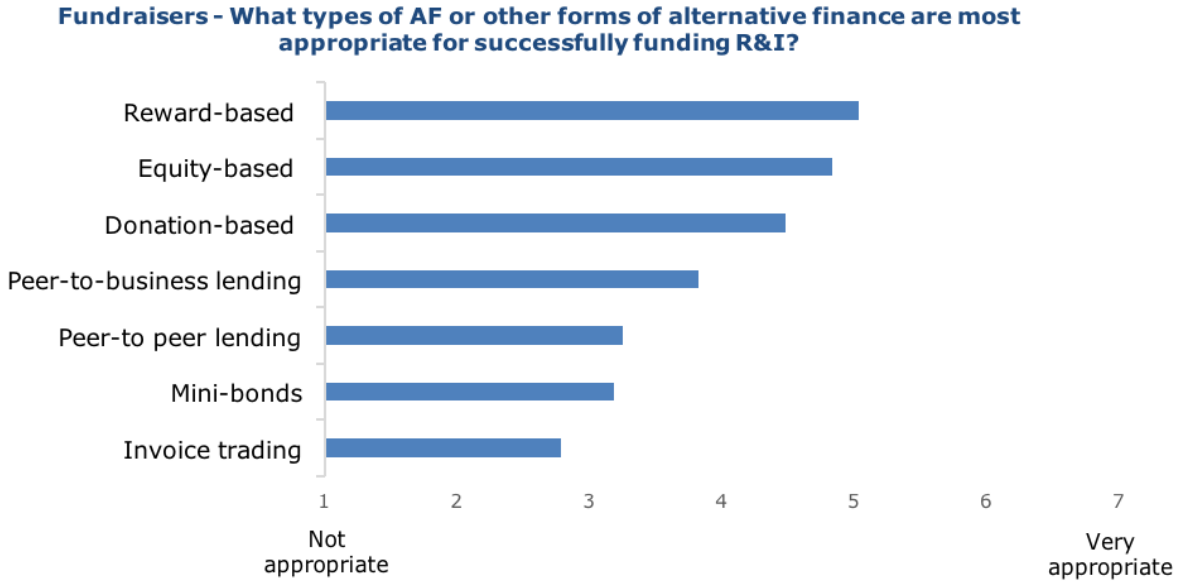
Source: Interviews (respondents: 14 investors)

Figure 46 AF models and their appropriateness for R&I projects according to platforms



Source: Interviews (respondents: 10 platforms)

Figure 47 AF models and their appropriateness for R&I projects according to fundraisers



Source: Interviews (respondents: 7 users/fundraisers)

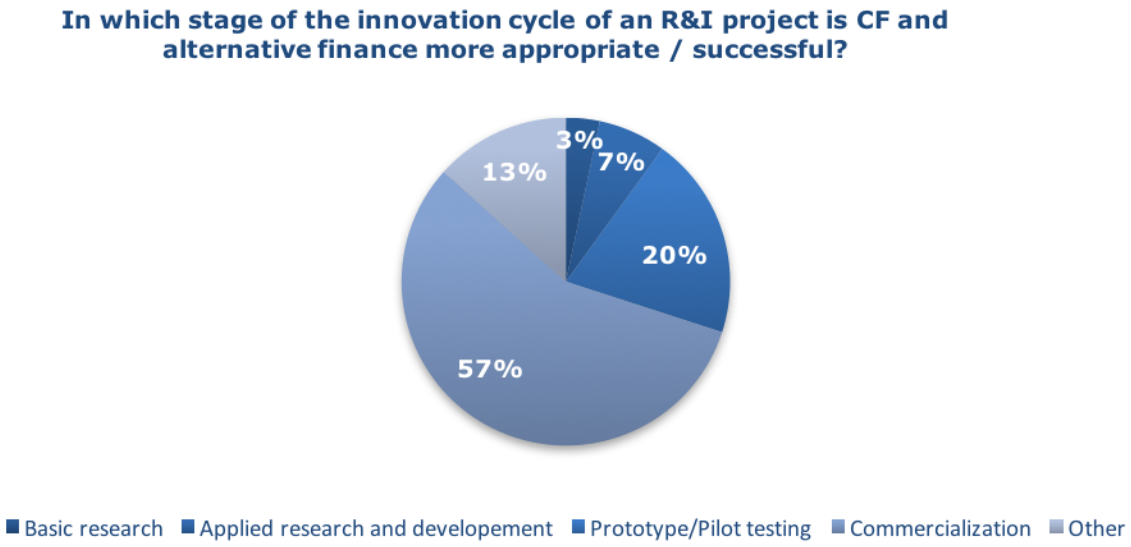
In particular, most stakeholders agreed that the donation-based AF model is most suitable for research projects, stating that such model usually gathers funds by individuals who are inclined to donate money without having a return and who have an emotional orientation towards investments. The fact that certain areas of research are intrinsically linked to philanthropic causes (e.g. medical cure and treatments, environment and sustainability), is another key reason for the success of donation-based AF for research projects.

With specific regard to innovation projects, most of the interviewees stated that the use of a particular model of AF is linked closely to the project's sector and depends on the stage of the innovation cycle, adding that most of the time the equity model is the most suitable one. *"If the product/idea is in the early stage, you can ask for donation or reward if there's a common purpose for the crowd funders. However, if the project is ready for commercialization, you can ask for equity",* said an expert of crowdsourcing methods.

Overall, respondents highlighted the need to combine different models of AF and traditional methods of finance within the same investment portfolio, because all the models are complementary and investors should not use a single model as the unique source of investment.

During the study, interviewees have been asked whether AF and other forms of alternative finance are appropriate to finance different stages of life cycle of an R&I project, with them being clustered in the following phases: basic research, applied research and development, prototype and pilot testing, commercialisation.

Figure 48 Potential of AF in different stages of the life cycle of an R&I project



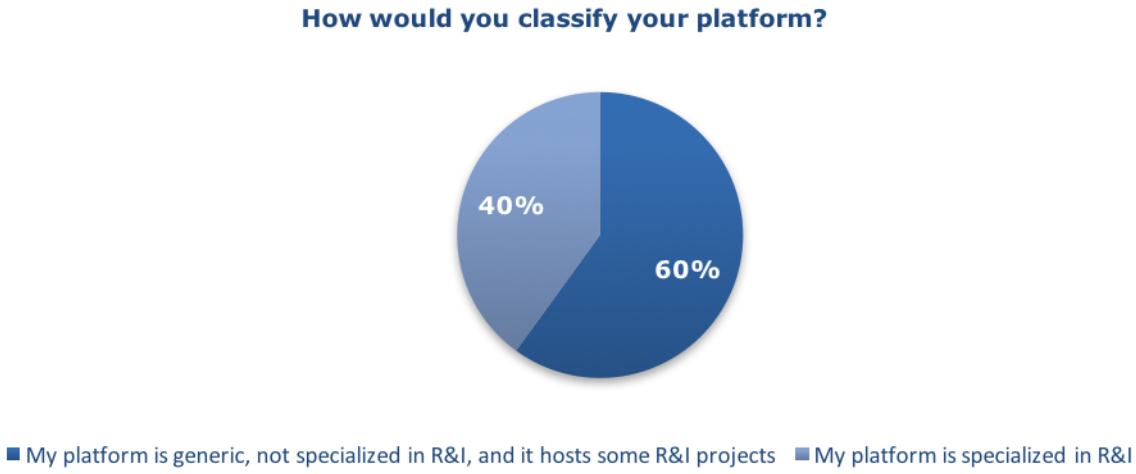
Source: Interviews (45 respondents including 7 users/fundraisers, 14 investors, 10 platforms, 14 innovation eco-system players)

Stakeholders, independently from the category to which they belong, agreed that *commercialisation* is the most suitable phase of the innovation cycle to be financed via AF. This is because, at this specific stage the product can be seen, tested and understood by both investors and consumers.

Notwithstanding this, when commenting their choice, some respondents added that there is not only one phase of the innovation cycle that is *most appropriate* for AF, but that each stage of the R&I cycle could potentially be financed through different AF models. Specifically, the very first stages of an R&I project (basic and applied research) could be financed via a donation-based AF, whereas the prototype an pilot testing phases could be more oriented on the rewards-based model and the commercialisation phase could raise money through the reward and /or equity-based model.

The majority of platforms interviewed are generic, hosting some R&I projects. Several platforms are specialised in R&I, while there are no platforms specialised in other areas (Figure 49).

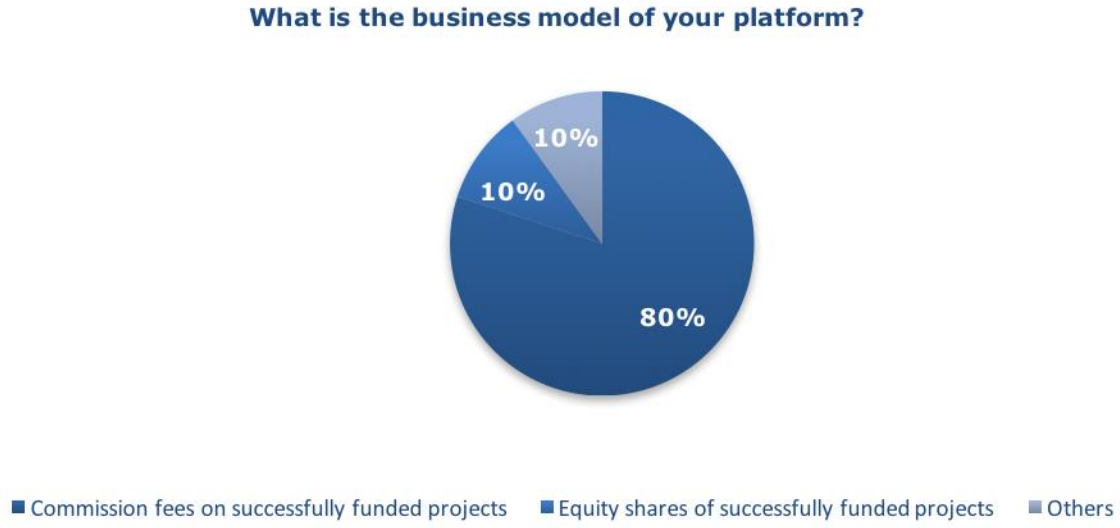
Figure 49 Classification of the platforms interviewed



Source: Interviews (respondents: 10 platforms)

Most of the interviewed platforms adopted commission fees on successfully funded projects as business models; only one platform is using equity shares of successfully funded projects

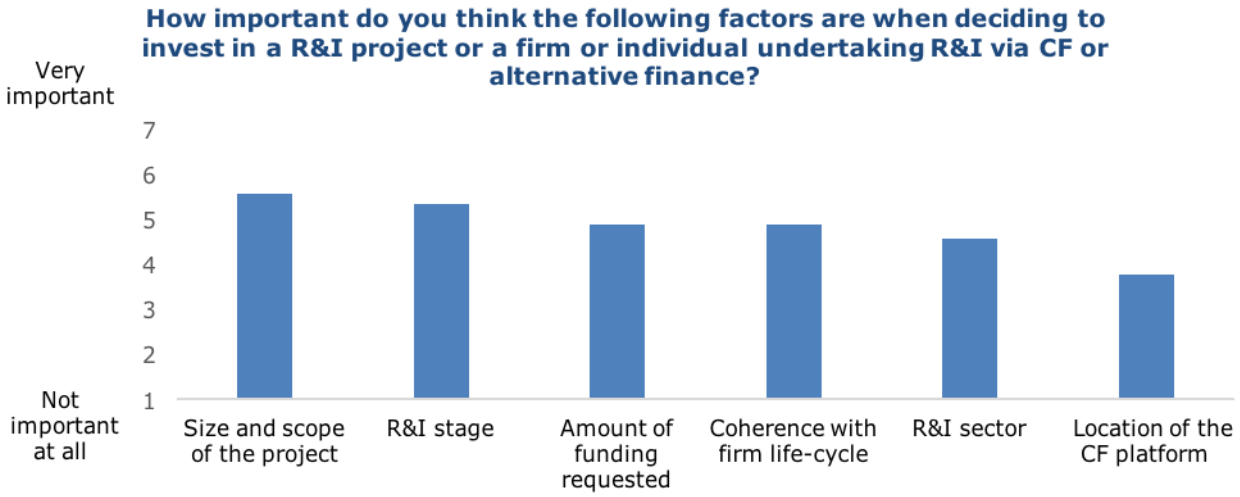
Figure 50 Business models adopted by the platforms interviewed



Source: Interviews (respondents: 10 platforms)

The majority of interviewees identified *the size and scope of projects*, along with the *R&I stage* as the most important factors to be assessed when deciding to invest in an R&I project or firm via AF or alternative finance.

Figure 51 Factors influencing investors backing a R&I project via AF



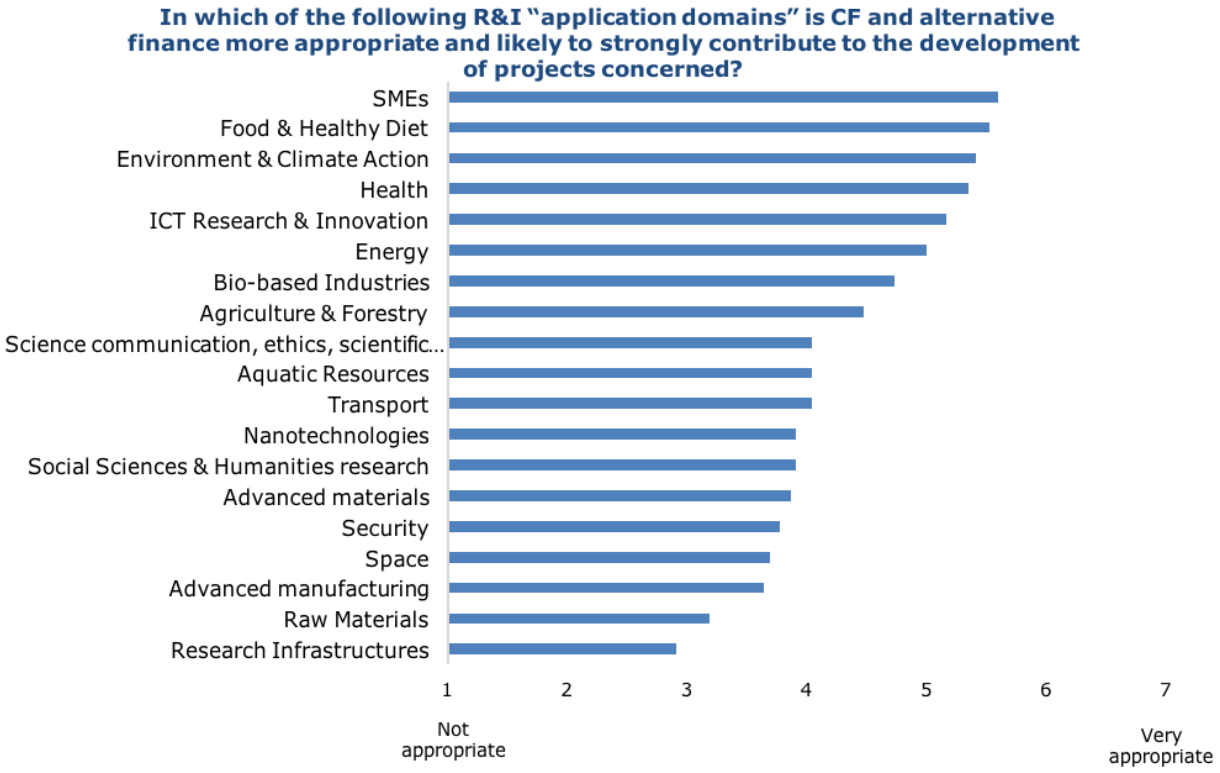
Source: Interviews (38 respondents including 14 investors, 10 platforms, 14 innovation eco-system players)

In addition, some investors stressed that strategic elements to be considered when deciding to invest via AF or alternative finance in R&I include:

- factors related to human resources (e.g. the composition of teams, the presence of an independent expert with strong expertise in technology, etc.);
- the existence of a network and partnership engaged in the project (e.g. universities, individual researchers with a strong specialisation in the field, etc.);
- the involvement of other investors.
- the location of the platform which can have an impact as each country has its own regulation
- the credibility of the project: *"I think that the most important criteria is the credibility of the project because currently when someone hears the word "crowdfunding" they immediately think about a "crazy" project but, of course, when you talk about a project in Research and Innovation you are talking about a "serious" project, so there is a problem of credibility"* observed a lawyer specialised in supporting AF platforms.

Bearing in mind the H2020 taxonomy, the majority of interviewees think that overall *AF is appropriate to finance SMEs active in R&I, independently from their application domain* (Figure 52).

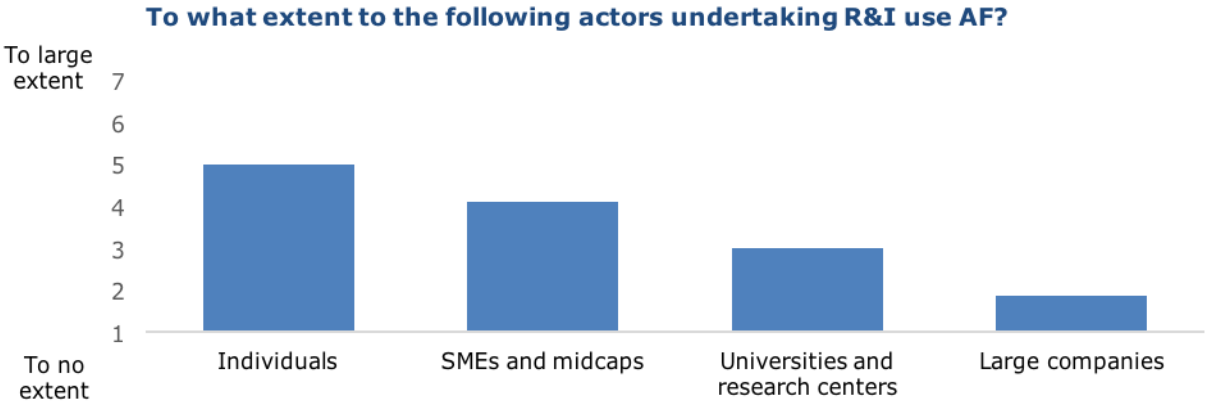
Figure 52 Appropriateness of project sectors to be funded via AF and alternative finance



Source: Interviews (45 respondents including 7 users/fundraisers, 14 investors, 10 platforms, 14 innovation eco-system players)

During our research, we tried to understand which categories and actors undertaking R&I most use AF. The majority of interviewees identified *Individuals* along with *SMEs* as the categories who most use and benefit from AF, compared to other actors such as large companies, universities and centers of research.

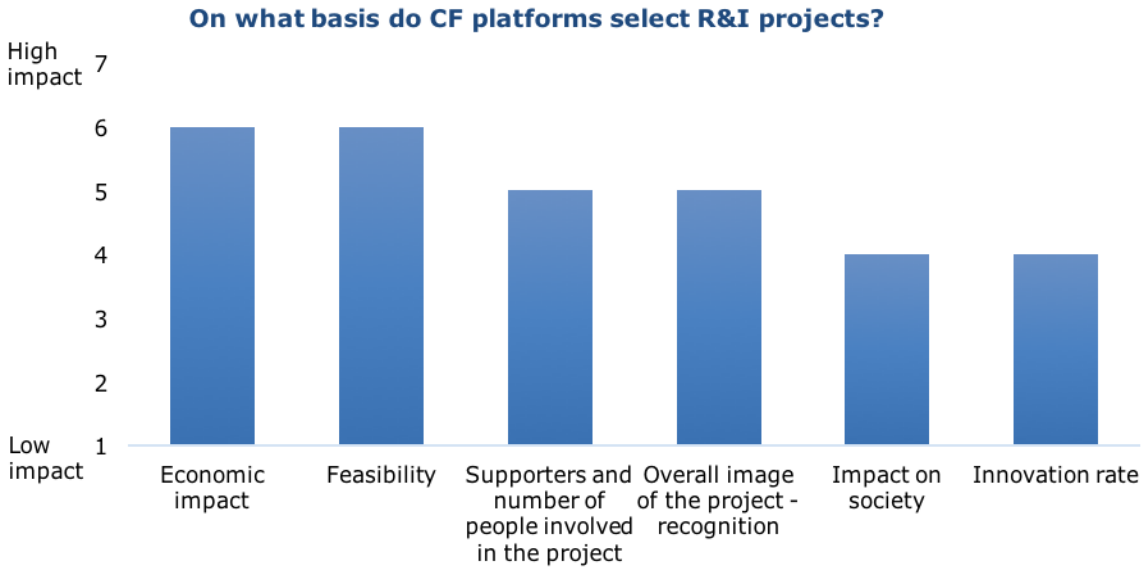
Figure 53 Engagement in AF by actors



Source: Interviews (31 respondents including 7 users/fundraisers, 10 platforms, 14 innovation eco-system players)

The majority of platforms stated that the "economic impact" and the "project feasibility" are the most impacting factors taken into account by platforms when they have to select R&I projects and list them.

Figure 54 Selection criteria used by platforms



Source: Interviews (respondents: 10 platforms)

Notwithstanding this, the interviewed platforms clarified that projects are usually selected taking into account a variety of factors, adding that each platform may adopt its unique selection criteria.

Main results - Objective 2

Research questions	Main finding
B7 - Are there particular regulatory provisions at the EU or national level that might slow the development of EU or national AF platforms and/or projects funded via the platforms and other forms of alternative finance in support of R&I? How could EU and national regulators address these problems?	• There is consensus amongst stakeholder on the stronger potential of AF innovation projects vis-à-vis research projects
D5 - What are the views of national regulators on AF and other forms of alternative finance for R&I?	• Research projects and Innovation projects can be successfully funded resorting to different AF models that are coherent with a project's mission and level of ROI
D2 - Specifically, what impediments are there towards cross-border AF platform operations in support of R&I? How could these be addressed? To what extent is the MiFID helpful in assisting AF platforms to operate cross-border?	• R&I projects in the commercialisation phase are more likely to succeed and be funded via AF
D4 - Besides issues, if any, with respect to regulatory regimes, what other impediments are	• Interviewed AF platforms are mostly

there to cross-border operations for AF platforms focused in R&I specifically and for AF generally?	generic but they host some R&I projects
A10 - Q28 In your opinion, how important do you think the following factors are in determining the success of a crowdfunding campaign?	• The majority of platforms interviewed apply commission fees on successfully funded projects
D9 - To what extent is the transparency of AF platform operations (including information about the identities of operators and backers, contact details, etc.) an issue in encouraging fundraisers and investors to use AF as an alternative source of finance generally and to support R&I specifically?	• Investments in AF are mainly driven by factors related to the R&I project as well as by the reason to invest or donate money
Q63 - How much you agree with each of the statements presented below?	• AF is very appropriate to fund projects belonging to sectors generating life-conditions improvements
Q64 - In your opinion, which of the following would be the most effective way for platforms to attract more investors to crowdfunding?	• Projects listed on AF platforms bear different type of risks that should be carefully assessed by investors
D8 - Have there been problems in acquiring or protecting IPRs in R&I projects funded via AF? If so, how could they be overcome?	• R&I project in the EU can be funded via different types of innovative and successful alternative finance methods
A24 - What is impeding the development of R&I focused AF platforms in some countries? A23 - Why are R&I-focused AF platforms developing in some countries more than in others? Are their particular characteristics of their mode of operation that might account for this?	• AF and alternative finance in R&I are used by several actors to a different extent, with individuals and SMEs recurring more to such methods • The potential of "enterprise" crowdfunding has not been widely recognised by all stakeholders
A14 - What is the market failure or deficiency, if any, that would justify EU public aid measures for AF? Is there any data on this?	• AF platforms usually look at the feasibility and economic impact of an R&I project before selecting and listing it
A17 - From a fundraiser's point of view, what are the entry barriers to listing on a platform? For example, with regard to a project's communication campaign (including boosting project writing, presentation and video skills), business plan preparation, campaign support, outreach or any other promotional mechanisms.	• Crowdlending platforms use different methods to assess the risk profile of borrowers

During interviews, stakeholders expressed **different opinions on the existence of specific regulatory provisions at the EU or national level that could slow the development of EU or national AF platforms and/or projects funded via AF.**

The very large majority of respondents identified **regulatory fragmentation** at the EU level and the **existence of different regulatory regimes** in different countries as the main obstacles in cross-border operations.

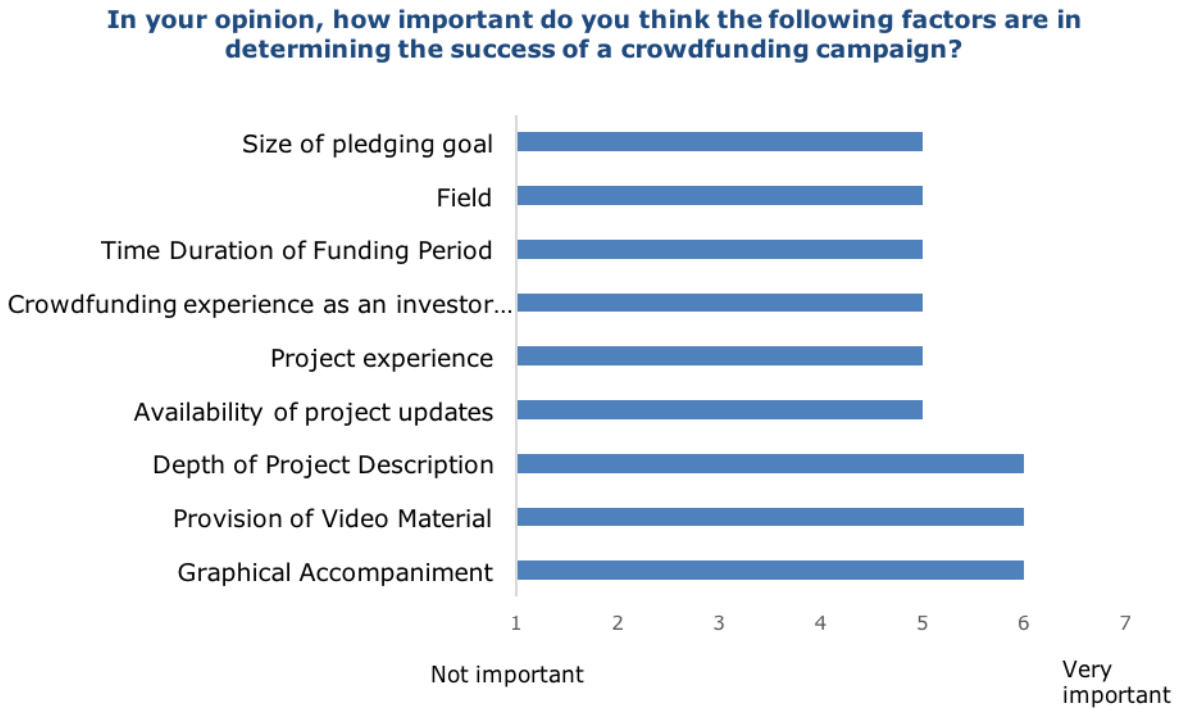
Besides regulatory aspects, **the majority of stakeholders highlighted** that also **linguistic barriers, cultural differences and differences in the tax model used** could represent an obstacle for cross-border operations.

According to the majority of interviewees, **factors determining the success of a AF campaign** are mostly related to **how the project is presented,** followed by **the characteristics and background of the fundraisers**.

With regard to the use of media within the campaign, *the* ***provision of video material*** and ***graphical accompaniments, along with the depth of the project description*** are considered as **highly important** by interviewees, who commented that videos could help the project in being visually more appealing, hence determining a broader success of the campaign.

Additionally, the ***field***, the ***time duration of the funding period, and*** a ***AF experience as an investor***, ***project experience*** are all factors equally important in determining the success of the AF campaign. With regard to the ***availability of project updates***, *it* is critical to investors, who commented that, in order to invest in a project, they have to have as many updates and detailed information as possible.

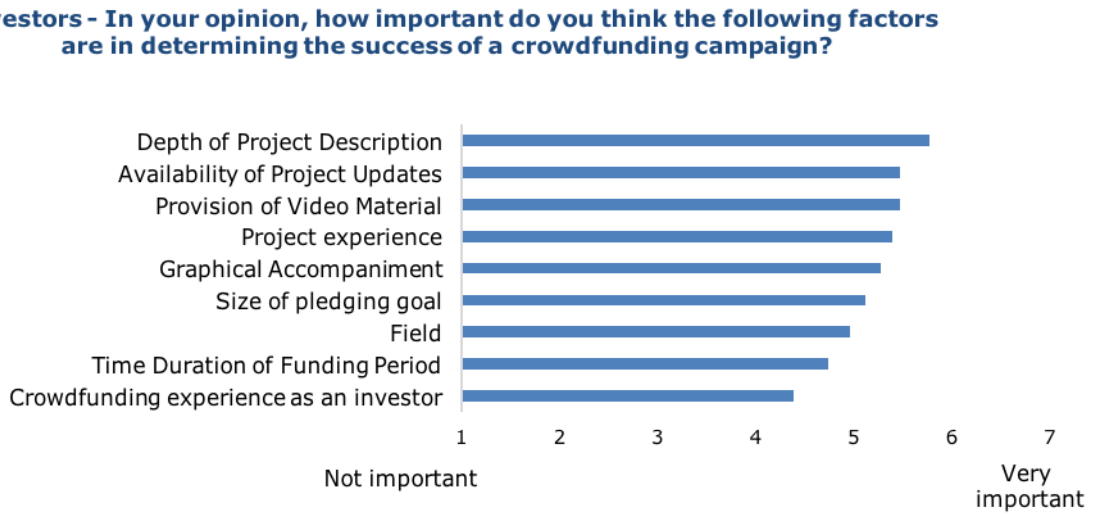
Figure 55 Factors determining AF campaign's success



Source: Interviews (45 respondents including 7 users/fundraisers, 14 investors, 10 platforms, 14 innovation eco-system players)

On top of this, a number of investors stressed the **importance of having a winning team as well as a strong network when developing a successful AF campaign.**

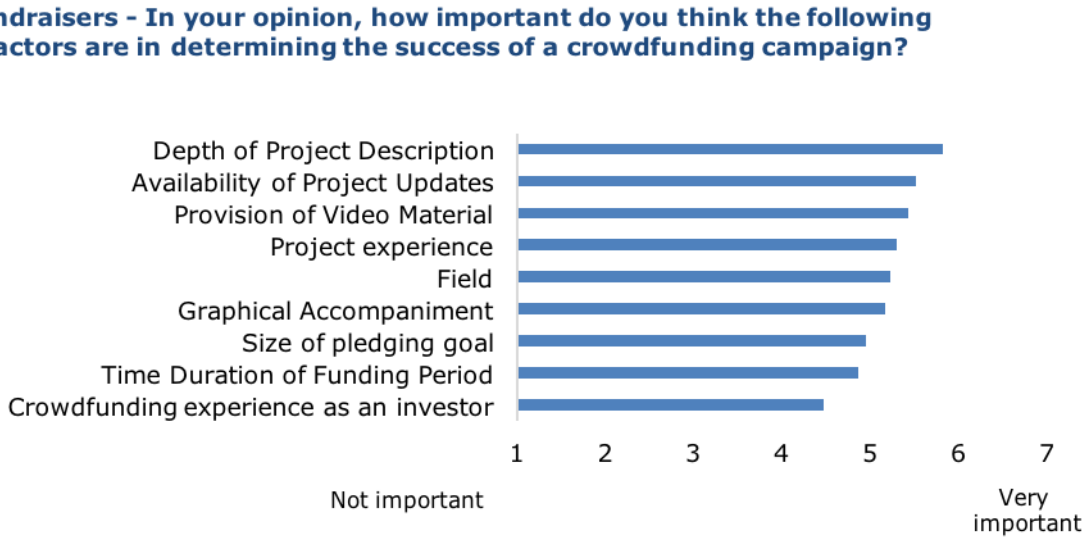
Figure 56 Factors determining the success of an AF campaign according to investors



Source: Interviews (respondents: 14 investors)

In particular, fundraisers considered the ***field*** of the project as quite relevant to determine the success of an AF campaign, meaning that fundraisers should concentrate their activities and projects in a field that is coherent with their organisation or business area.

Figure 57 Factors determining the success of an AF campaign according to fundraisers



Source: Interviews (respondents: 7 users/fundraisers)

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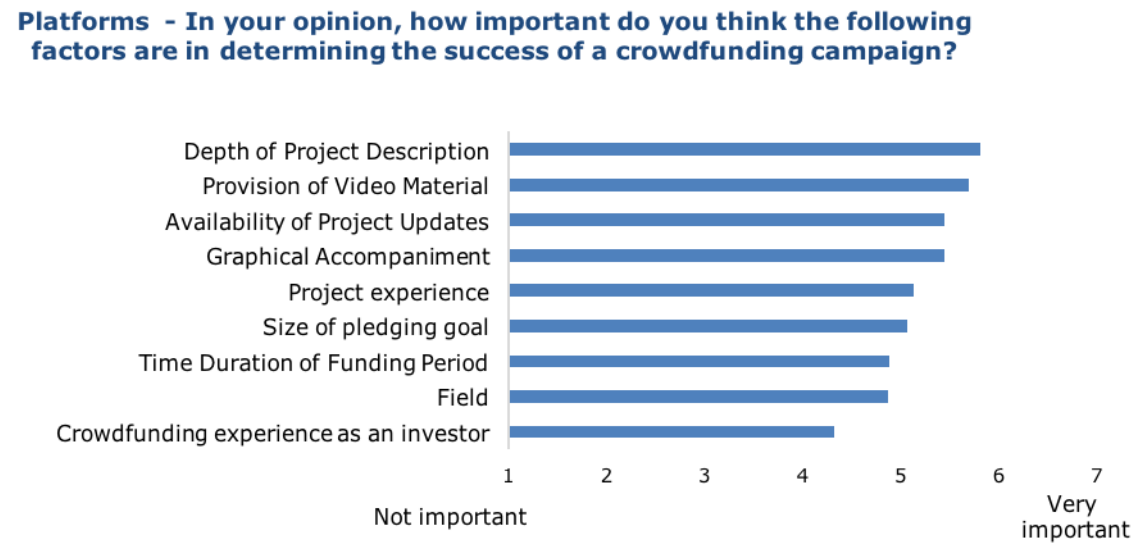
Figure 58 Factors determining the success of an AF campaign according to innovation eco-system players

Source: Interviews (respondents: 14 innovation eco-system players)

Figure 59 Factors determining the success of an AF campaign according to platforms



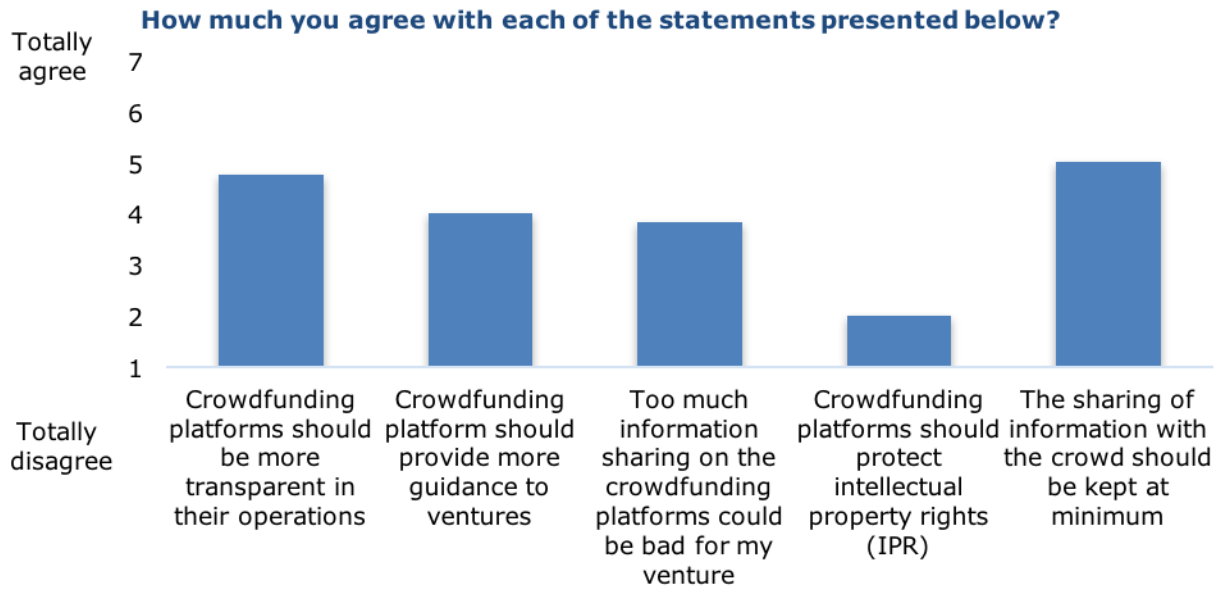
Source: Interviews (respondents: 10 platforms)

The transparency of AF platform operations is a key issue in encouraging the use of AF. Both the investors and fundraisers interviewed agreed on this point, observing that, more specifically, platforms should be transparent so that ***investors could be more confident in investing their money and fundraisers could be encouraged to use AF to raise money.***

Transparency and user support are aspects that must be improved by AF platforms, according to the majority of interviewees. Indeed, as shown in the figure below, the interviewed investors and

innovation eco-system players mainly stated that **AF platforms should be more transparent in their operations, in order to encourage people to invest their money.**

Figure 60 Actions that need to be implemented by platforms



Source: Interviews (28 respondents including 14 investors, 14 innovation eco-system players)

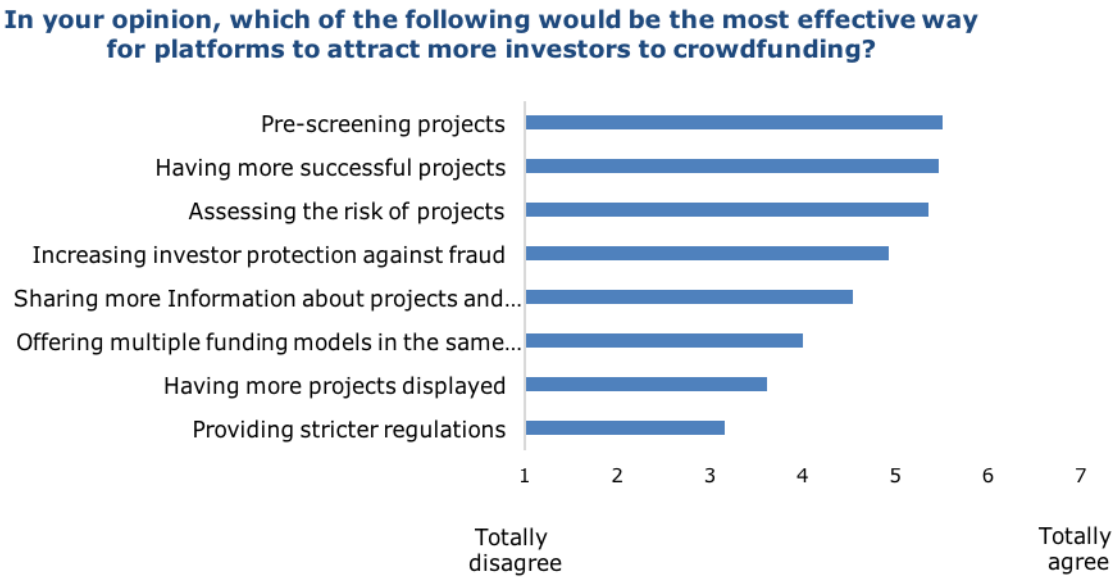
The interviewees agreed also that **AF platforms should provide more guidance to the ventures.** In addition to the points mentioned above, the figure also shows that many investors considered that **fundraisers should be in charge of the protection of their Intellectual property rights** and that they should take care of this area before listing on the platforms. Conversely, **for platforms it seemed to be difficult to regulate this aspect due to the diversity of the projects listed**.

Both the investors and innovation eco-system players interviewed also think that **the information shared on the platform should not be kept at the minimum level but at a sufficient one** and also that is important to **assure the quality of the information provided which needs to be clear.**

AF is perceived as a risky way to invest money and consequently interviewees highlighted the need to assess the risk related to the projects listed on platforms.

According to the figure below, **prescreening of the projects** and **to list more successful projects** are considered the most effective ways for platforms to attract more investors to AF, followed by **assessing the risk of projects**.

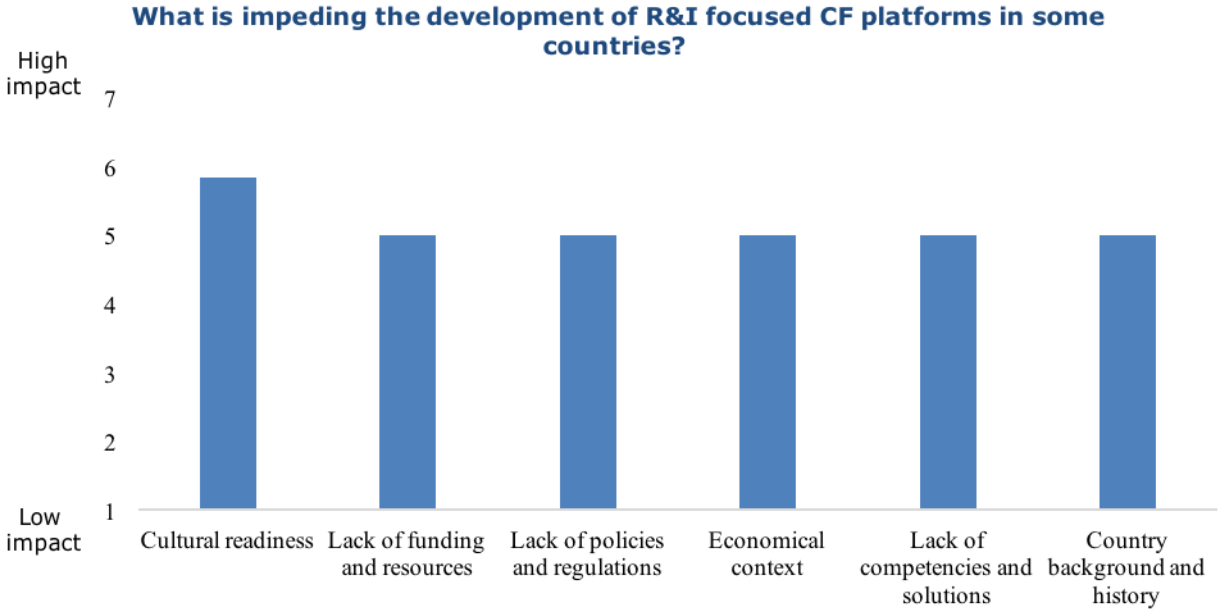
Figure 61 Actions to be taken by platforms to increase their attractiveness



Source: Interviews (28 respondents including 14 investors, 14 innovation eco-system players)

With regard to the development of R&I focused AF platforms, the majority of the interviewed stakeholders agreed that a higher development in some countries than in others, depends on a number of different factors, all connected to the existence of the specific and complex ecosystem that characterises each country.

Figure 62 Perceived impediments to AF development



Source: Interviews (24 respondents including 10 platforms, 14 innovation eco-system players)

Firstly, a substantial part of the interviewees affirmed that **the development of R&I focused AF platforms depends on the cultural readiness of local governments.** In addition, **cultural**

awareness about different forms of finance would play a significant role, considering the need in some countries to make an effort in order to share the knowledge about the existence of alternative ways of financing and investing.
Secondly, stakeholders stressed the importance of the **lack funding and resources and the lack of policies and regulations.** A specific jurisdiction on AF is needed so as to have a basic level of trust amongst investors and project owners. Indeed, where this kind of regulation already exists, e.g. in the UK, AF is a popular financing method and it is developing more and more each day.

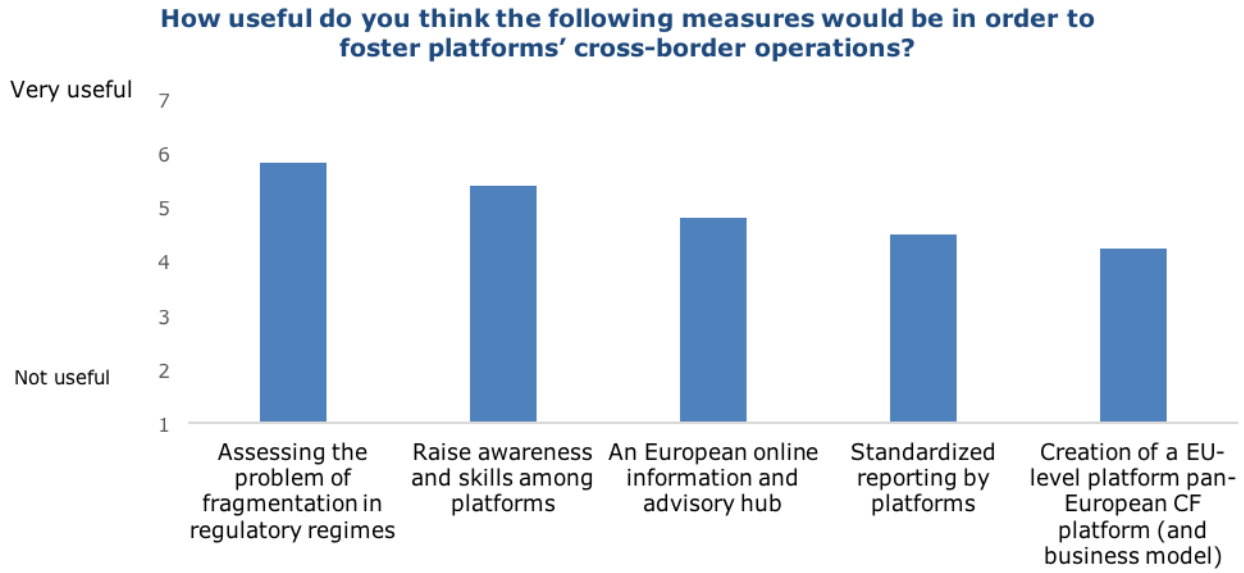
Another important issue highlighted was the importance of the **economical context** on the development of R&I focused AF platforms, adding that, if the economy is not in a good situation, the lack of funding and resources may affect the potential of AF.

Main results - Objective 3

Research questions	Main finding
Q32 - How useful do you think the following measures would be in order to foster platforms' cross-border operations?	• Assessing the problem of fragmentation in regulatory regimes could enhance the cross-border operations of platforms
Q34 - How useful do you think the following potential measures would be in order to increase the amount of funding raised?	• Stakeholders see tax deductibility at MS level and transparency in the operations as two important measures to increase the amount of funding raised via AF

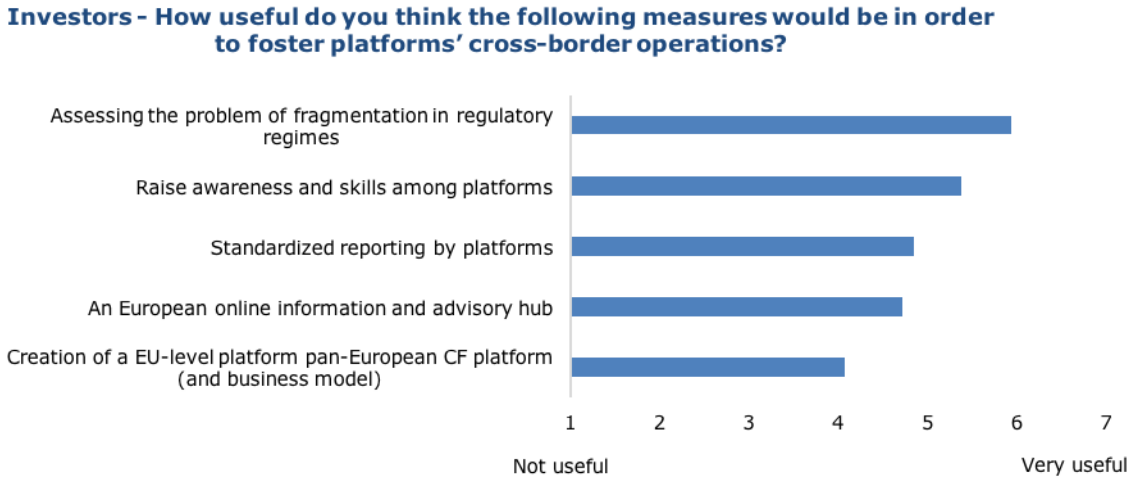
The majority of interviewed stakeholders agreed that the most useful measure in order to foster cross-border AF operations would be the assessment of the problem of fragmentation in regulatory regimes, followed by the need to raise awareness and skills amongst platforms.

Figure 63 Perceived usefulness of measures to foster cross border operations



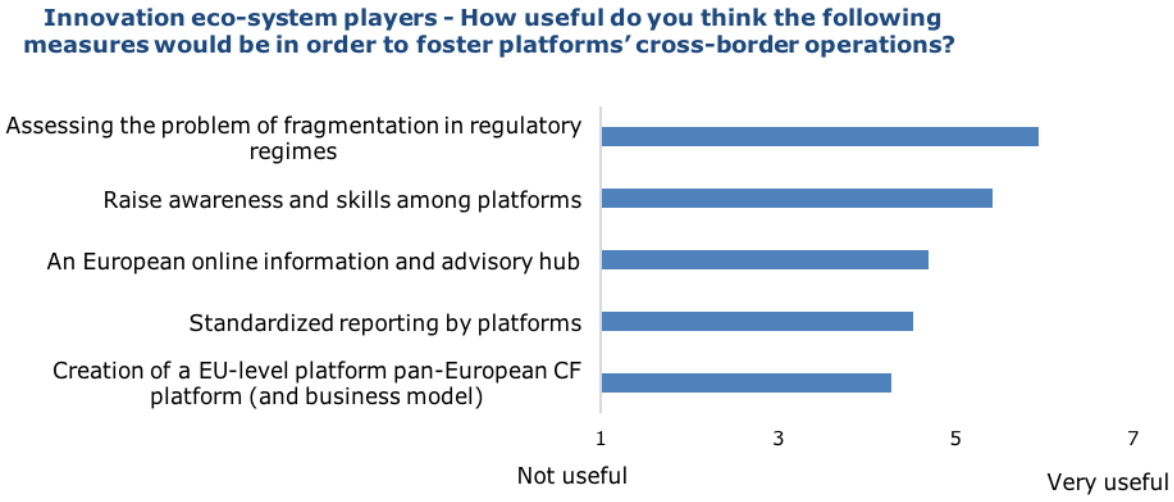
Source: Interviews (58 respondents including 7 users/fundraisers, 14 investors, 10 platforms, 14 innovation eco-system players, 13 regulators)

Figure 64 Perceived usefulness of measures to foster cross border operations according to investors



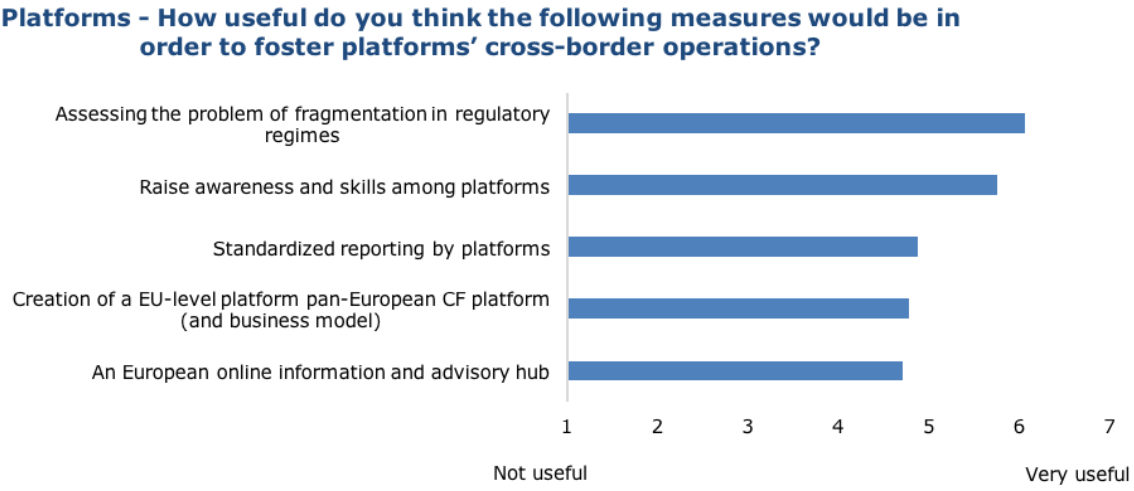
Source: Interviews (respondents: 14 investors)

Figure 65 Perceived usefulness of measures to foster cross border operations according to eco-system players



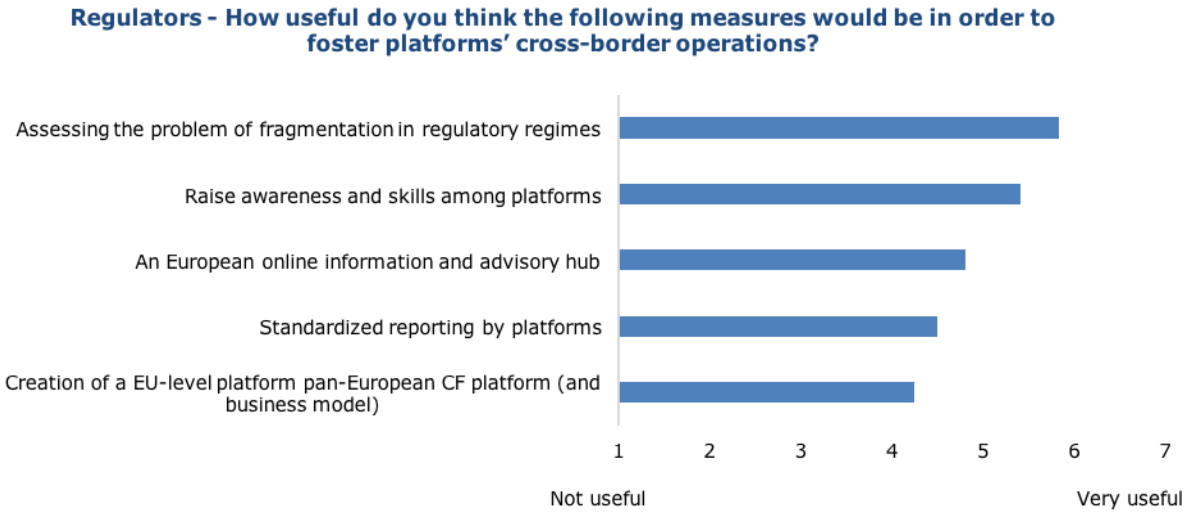
Source: Interviews (respondents: 14 innovation eco-system players)

Figure 66 Perceived usefulness of measures to foster cross border operations according to platforms



Source: Interviews (respondents: 10 platforms)

Figure 67 Perceived usefulness of measures to foster cross border operations according to regulators

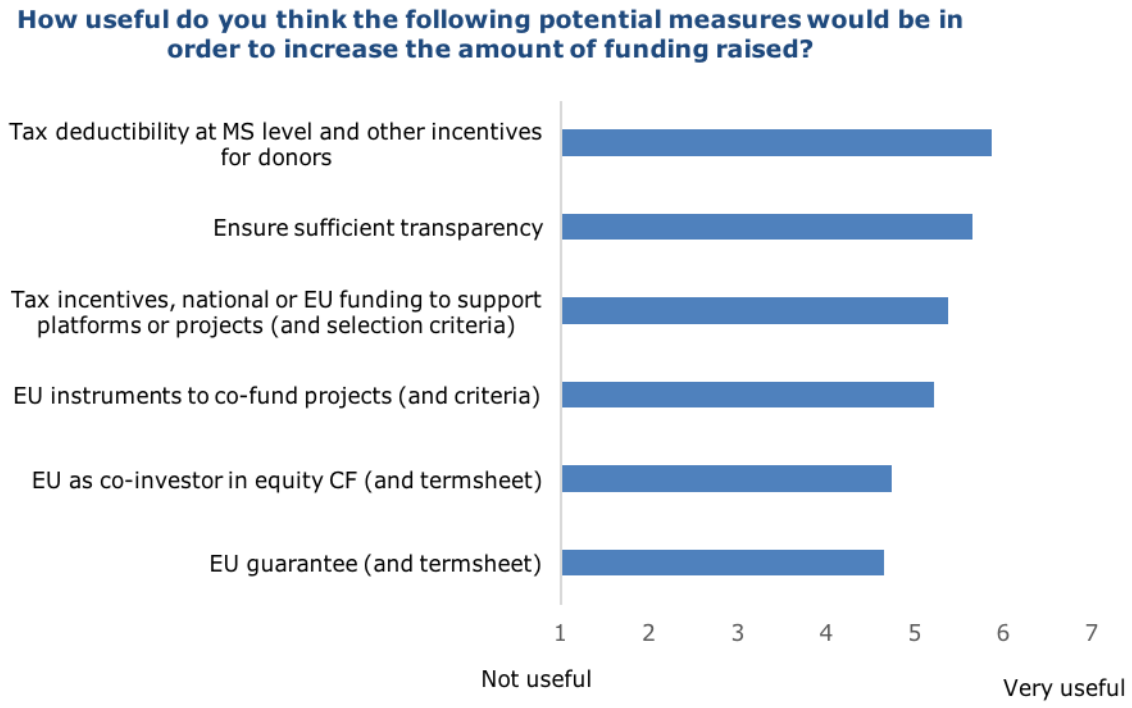


Source: Interviews (respondents: 13 regulators)

Stakeholders see tax deductibility at MS level and transparency in the operations as two important measures to increase the amount of funding raised via AF

With regard to potential measures to increase the amount of funding raised, Figure 68 shows that stakeholders perceived the commitment to ensure sufficient transparency as very useful, followed by tax deductibility at MS level and other incentives for donors.

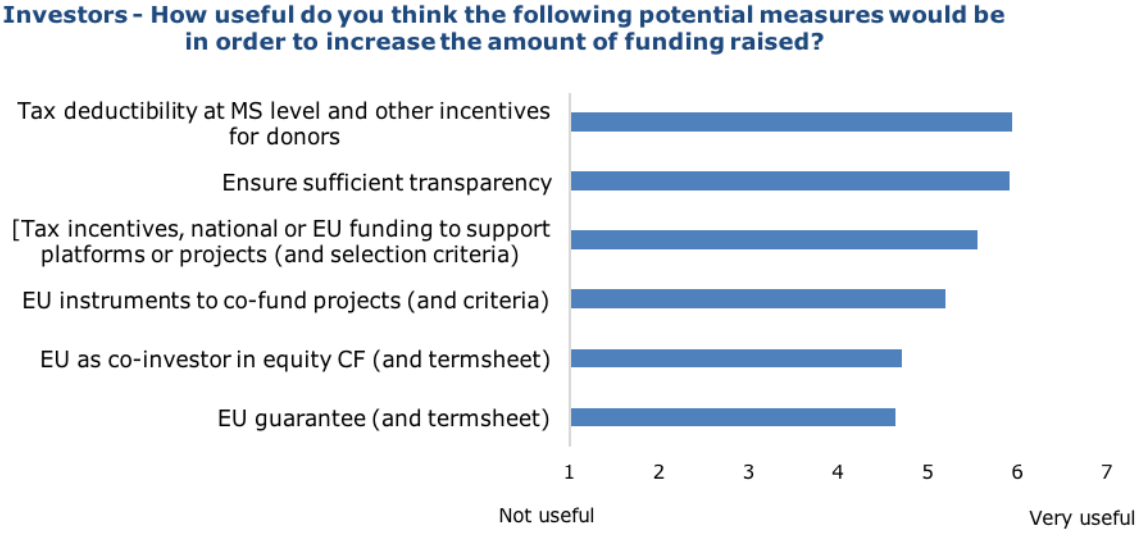
Figure 68 Perceived usefulness of measures to increase funding according to eco-system players



Source: Interviews (58 respondents including 7 users/fundraisers, 14 investors, 10 platforms, 14 innovation eco-system players, 13 regulators)

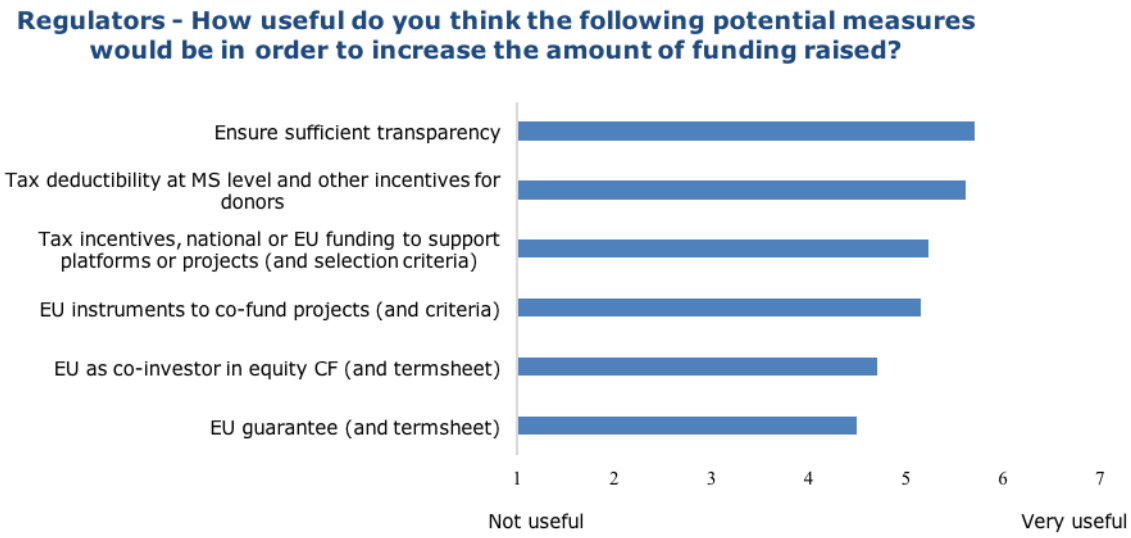
Interestingly, tax deductibility at MS level and other incentives for donors was indicated as the preferred measure by the majority of investors, platforms and innovation eco-system players**.**

Figure 69 Perceived usefulness of measures to increase funding according to investors



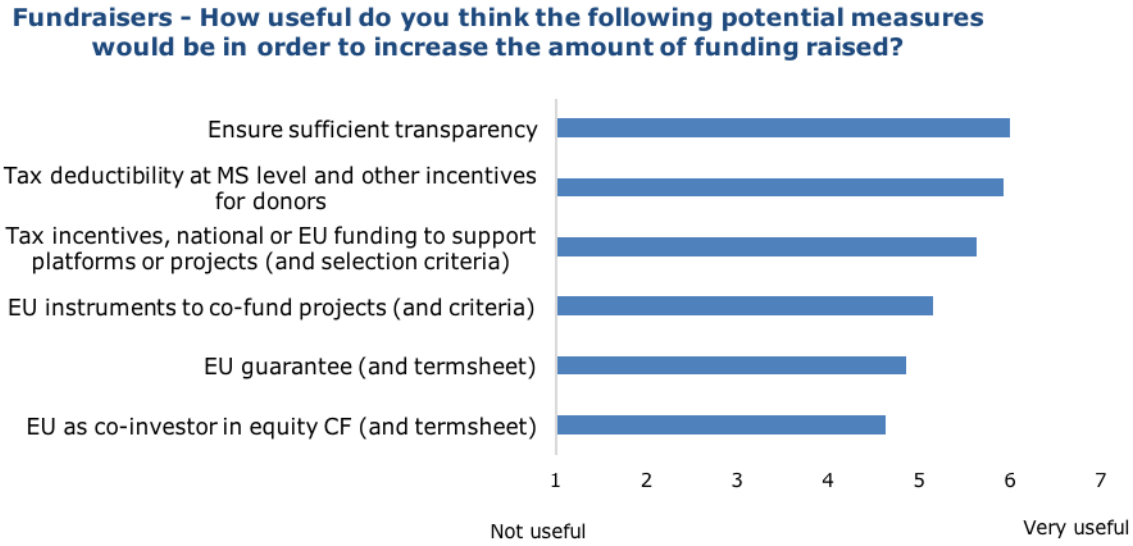
Source: Interviews (respondents: 14 investors)

Figure 70 Perceived usefulness of measures to increase funding according to regulators



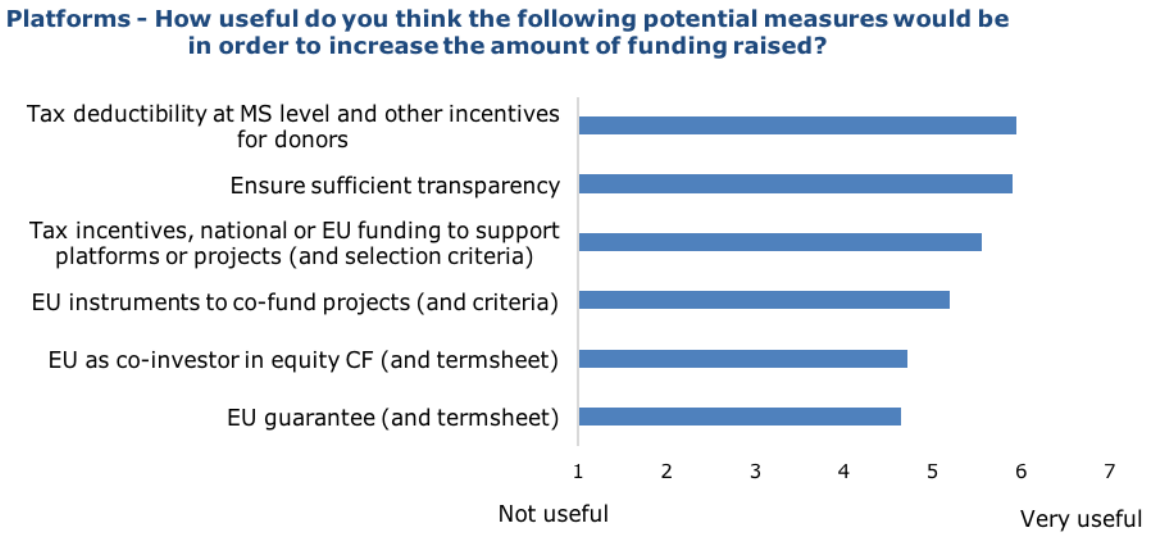
Source: Interviews (respondents: 13 regulators)

Figure 71 Perceived usefulness of measures to increase funding according to fundraisers



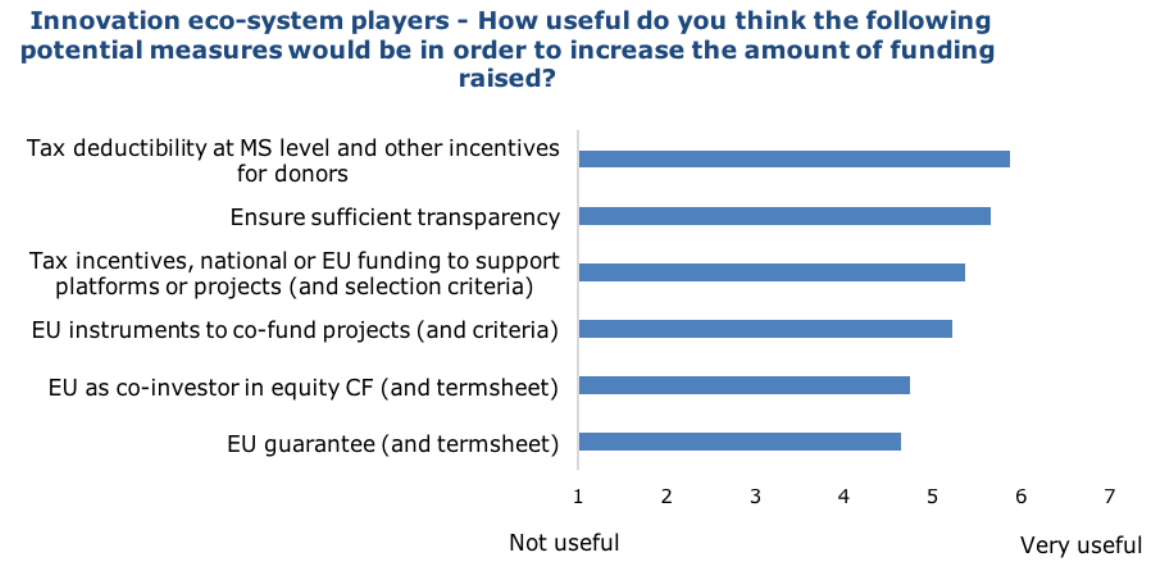
Source: Interviews (respondents: 7 users/fundraisers)

Figure 72 Perceived usefulness of measures to increase funding according to platforms



Source: Interviews (respondents: 10 platforms)

Figure 73 Perceived usefulness of measures to increase funding according to eco-system players



Source: Interviews (respondents: 14 innovation eco-system players)

In addition to the list of measures presented above, other potential measures emerged in order to increase the amount of funding raised via AF, namely communication and awareness campaigns. Indeed, some interviewed stakeholders stressed that there is still a lack of awareness about AF and other methods of alternative finance and that sharing knowledge and experiences concerning the topic would be useful in order to get new people involved.

ANNEX 9 FOCUS GROUPS - OVERVIEW AND SUMMARY OF FINDINGS

In order to systematically assess the potential of crowdfunding for R&I interactive focus groups have been chosen as one method to collect primary data and to complement results from surveys, interviews, and case studies.

During the project, four focus groups targeting investors, crowdfunding platforms, users and institutions were organised. Finally, the key-findings from these focus groups will feed into a final workshop aimed at defining the most relevant policy recommendations.

- Focus Group 1, Investors, 1st April, www. Innoventerprise.eu, The Hague, NL

Focused on the Investors Community, the focus group was held alongside Innoventerprise.eu, an event organised by the EC in The Hague on the 1st of April 2016, where various investor communities relevant for Crowdfunding were present. The discussion between 7 invited investors and the study team aimed at getting more insights on the views of the investors on financing research and innovation projects through crowdfunding.

- Focus Group 2, Platforms, 23rd May – 2nd ECN Crowd Camp and General Assembly, Brussels, BE

Targeted to Crowdfunding Platforms, the event was co-located with the 2nd ECN CrowdCamp in Brussels on the 23rd of May. 10 representatives of Crowdfunding Platforms from 8 different countries allowed an in-depth discussion on the views of the platform representatives on financing research and innovation projects through crowdfunding.

- Focus Group 3, Users, 11th October SME Instrument Event, Brussels, BE

The focus group focused on users who already used crowdfunding to carry out their research or innovation. It was organised in month 10, co-located with the SME instrument Innovators Summit in Brussels.

- Focus Group 4, Ecosystem, 7th September, Crowd Dialog Europe 2016, Graz, AT

It took place in month 9 in Graz (AT) and aimed at identifying bottlenecks and drivers for ecosystem representatives to enhance the potential for R&I crowdfunding. This focus group was organised in conjunction with the Crowd Dialog 2016 in Graz (AT), as the event covered a great number of representatives from chambers of commerce, national policy makers, regions, executives of national crowdfunding associations, and consumer bodies.

KEY FINDINGS OF THE FOCUS GROUPS

Target Group	Objective 1 - Understanding the role of alternative finance for R&I
Investors	• Motivation: return of investment. • Much uncertainty with regard to crowdfunding. • High risk. • Size, project success rate, overall funding success are important quality indicators. • Business Angels are contacted by AF platforms when interesting projects. • Investors use AF platforms to test market potential before placing higher investments, "Proof of Concept" Funding. • Important requirement: Legal entity behind the project. • TRL as indicator, low = donations/rewards, high = equity/lending.
Citizens	• Motivation: varies from personal interest to professional investment. ○ Emotions are a crucial aspect.

	○ Crowdfunding research create new knowledge. ○ Crowdfunding innovation monetary aspects. ○ Local aspect: Citizens are more likely to invest in local platforms with local projects. • Communities for small niche oriented or science oriented donation-based platforms are too small, yet. • Research and science is based on donations and rewards. • Equity/Lending crowdfunding: marketable prototype or even product has to be available. • High amounts achievable with emotions (research) or disruptive innovations.
Researchers	• Motivation: ○ Acquire Funding. ○ Science Communication. ○ Crowdsourcing for distributing Funds. • Uptake of crowdfunding by universities and universities of applied sciences is very, very low. • Small crowdfunding amounts can create impact for university projects. • Only few cooperation between research institutions and AF platforms. • Crowdfunding is still not mature enough to attract larger institutions such as universities.
Companies/SMEs	• International donation-based campaigns as an important marketing instrument for internationalisation: 1) they raise funds, 2) build a community and 3) receive early feedback and ideas from the "crowd". • Equity-based crowdfunding for R&I used by SMEs as a proof of concept and for raising money for commercial development. • Equity or lending-based crowdfunding as supplementary tool for closing the equity gap, e.g. for a bank loan, and average sums range between EUR 100,000-1 million. • National platforms more suitable for involving local stakeholders. • Due to differentiated cross-country legislation national equity and lending based crowdfunding platforms are preferred by fundraisers and backers. • Crowdfunding is still very new and most of SMEs haven´t used it. SME innovations are financed either through public grants and funding, private investments or a bank. • A successful AF campaign is very useful in getting a bank loan. • Success factors of the campaign: the selection process (divided in preselection of projects by the platform and the crowdselection, i.e. the crowd providing funds and feedback), and the reputation of the platform in terms of project success rate and community. • Reward-based crowdfunding in Europe is challenging - the presence of larger US platforms in this segment makes it difficult for the European fundraisers to develop an alternative that could be able to reach the same dimensions. • Reward-based platforms reached a significant size only in those European countries with a vivid AF scene, such as France (e.g. Kisskissbankbank, Ulule) and Germany (Startnext). • Campaigns reaching EUR 500,000 are really the maximum. • Attracting big projects in research will therefore be very hard for a

	European reward-based platforms, as the fundraiser will more likely go to Kickstarter, Indiegogo, etc. • Institutional investors prefer to directly invest their money, avoiding the 5-10% fee that remains with a platform.

Target Group	Objective 2 - Identification of the challenges and bottlenecks of crowdfunding
Investors	• High risk of crowdfunding as a barrier. • Lack of relevant early stage market knowledge. • Legal aspects, crowdfunding means having the "crowd", i.e. different people and interests, involved in the company as a shareholder. • There are no best practices regarding which crowdfunding instrument is most suitable for different development stages of a company. • Crowdfunding research can take 15 years to be rewarded (investors prefer approximately 8 years for ROI). • Communication and trust are key elements for success. • Cross-border investments: investors prefer investments in combination with a country specific platform, as different national legal aspects are complex.
Platforms	• Business models and related challenges vary strongly. ○ Small, niche oriented platforms cannot finance themselves via transaction fees. ○ Large platforms equity/lending platforms need to scale up internationally, but struggle with regulations of different Member States. • High quality communication of project as a crucial aspect. ○ Costs for creating a convincing campaign are too high for smaller projects. • For research projects the persons (professor vs. student) and the history (publications, funding) might be crucial success factors. • Cross border operations: Only few big platforms, due to different national regulations and high costs of lawyers. • Risk assessment & Due Diligence: No common approach. • Role of AF platform is unclear: market place vs. financial service.
Ecosystem	• Fragmented crowdfunding market in different EU Member States. • National regulations a burden for cross-border activities. • Project funds as tool to minimize risk. • Crowdsourcing as interesting tool for research institutions to collect, share and communicate data. • Missing guidelines, service packages and best practice examples for the implementation of crowdfunding in institutions. • General lack of knowledge about alternative investments. • Insufficient communication of financial tools through educational systems. • Lack of knowledge about national, local support programmes (tax subsidies etc.). • Missing links between relevant eco-system players such as universities,

	local governments, chambers of commerce. • No local support through consultation/advice for interested fundraisers and investors. • Missing support for fundraisers in using existing grants, in creating a high quality campaign, or for connecting marketing consultants, platforms and fundraisers.
Fundraisers	• Lack of neutral and user-oriented information (too much general information and mostly related to a platform). • Lack of knowledge about project presentation. • Finding the time to prepare and launch a campaign • and the dominating conservative view on alternative financing mechanisms within their financial departments. • Crowdfunding is not plugged enough within local ecosystems - the need of a stronger cooperation between financial providers regarding incoming trends. A successful campaign or the due diligence of a bank would be very helpful for SMEs that are looking for other sources of funding. • Crowdfunding still not being professionally organised.

Target Group	Objective 3 – Policy recommendations
Investors	• Key Performance Indicators (KPIs) for platforms. • Enhance ways to leverage self-regulation of crowdfunding platforms. • Clear role definitions of AF platforms (market place vs. financial service providers. • Analyse factors of success and failure. • Tax incentives. • Combination with public grants. • EC guarantees to reduce the risk for lending-based crowdfunding. • Share Best Practice examples with regard to e.g. EU funded IPR & Patents. • EC-cofunding to leverage funding for equity-based crowdfunding. • Matching Fund concepts: Combining private with public funding. • Transparency: For investments, co-funding e.g. research grants, Evaluators/experts have to be transparent

Platforms	• AF guidelines on cross border investments.
	• Simplification and clarification of different national regulations with regard to crowdfunding.
	• Guidelines for crowdinvestors.
	• Enhance transparency of the crowdfunding market.
	• Crowdfunding training possibilities.
	  ○ for fundraisers on how to prepare a campaign.
	  ○ for investors/the crowd on basics of alternative finance.
	  ○ for platforms on due diligence aspects.
	• Public support measures for infrastructure of research/science crowdfunding platforms.
	• Micro-grants for crowdfunding project campaign preparation (EUr 2000-5000).

	• Collaboration with EC/national funding institutions with regard to interesting projects. • Tax incentives. • Guarantee schemes for investments in AF projects on regional level. • Enhance the collaboration on local level, finance local projects with public and private investments. • AF as risk-minimisation tool for EC-Grants. • Enhance cooperation between AF Platforms and institutions (research, government etc.). • Enhance investments in science through promoting science flagship projects / science communication.

Ecosystem	• Introduce national tax subsidies for crowdfunding.
	• Enhance crowd-investments through the creation of project funds (pooling of projects, risk minimisation).
	• Co-Financing market maturation of novel and innovative products (for early stage innovations, testing and adapting).
	• Guarantees for mitigating the uncertainty of buyers about investing in new technology (For start-ups and product launches).
	• Provide Crowdfunding Service Package for research centres/universities on how to introduce AF.
	  ○ Engage Alumni networks as investors.
	  ○ Start pilots.
	  ○ Share best practices.
	• Use crowdsourcing/crowdfunding to distribute institution internal funds.
	• Use crowdsourcing for innovation uptake through solving research/innovation challenges.
	• Create clear and easy to understand guidelines for investors in alternative funding schemes, e.g. crowdfunding.
	• EU wide clarification on the role of the AF platform (market place vs. financial consulting/financial service).
	• Creation of EU wide project funds.
	• EU acting as lead-investor for selected projects.
	• Microgrants on national or even European level to support campaign preparation.
	• Involve the "Crowd" in projects that have already received a national/EU grant.
	• Involve the "Crowd" as democracy tool for funding decisions.
	• Enhance innovation by solving research challenges through citizen science/crowdsourcing.
	• Use Crowdfunding as Science Communication tool.
	• Ensure basic financial education for all European Citizens.
	• Provide guidelines/recommendations for the creation of local and regional ecosystems on national level, e.g. through Chambers of Commerce, Start-up Centers, etc.
	• EU recommendation on key aspects for crowdfunding legislation in the member states.
	• Strengthening local and regional ecosystems on national level.
	• EU should enforce the creation of local/regional crowdfunding hubs.

	• Provide EU recommendation for the protection of pragmatic investors. • EC should provide national recommendations/guidelines on enhancing the potential of AF for local politicians.
Fundraisers	• Stronger cooperation between players of the financial ecosystem: banks should recommend projects they consider to have potential, but that they cannot support, to different AF platforms. • It is feasible to have a simplified pre-selection process for SME Instrument funded companies. • AF campaigns with a co-investment are more relaxed as the risk of failing is quite low, e.g. through so called matching funds. It could solve some issues of the sector, because both the risks for the investors and the risk of failing for the project are minimised. • The harmonisation of legislation at European level, in order to allow cross-border investments -getting cross-border licences is too expensive for most of the AF platforms, who are struggling in setting up a sustainable business model. • The creation of an EU-level crowdfunding platform. • To establish promotional campaigns towards SMEs in order to raise their awareness towards this alternative finance tool. • Collect the feedback received in a more structured way, in order to have a database of reactions and recommendations, or to establish a continuous monitoring project. • Reliable guidelines for SMEs including holistic information on how to access this sector and to combine new instruments with more established ones. Guidelines so far are too general and do not address the real costs entrepreneurs have when looking for finance. • The European Union could also support crowdfunding through education – potential fundraisers need to receive training on new tools of alternative financing. • Other measures at a European level: the assignment of a label certificate to previously funded projects, and a comprehensive analysis of best practices and guidelines made by institutions such as EASME. • Creation of a European Crowdfunding Framework – able to connect all the players in this market. • Strengthening the links between Business Angels investments and crowdfunding campaigns would help to overcome the issues of each one of these financing tools. • Creation of a standardised European monitoring for crowdfunding would support the collection of important data, useful for further improvements.

ANNEX 10 CASE STUDIES

Within the research, the study team has conducted 10 case studies on projects that launched through an AF campaign and on platforms active in this field.

More specifically, the study team has prepared:

- 1 case study on an AF platform;
- 1 case study on an AF debt-based platform (e.g. peer to peer consumer lending or peer to peer business lending platforms);
- 8 case studies on projects in R&I listed on AF platforms.

The sampling methodology for the selection of Case Studies has been designed in order to ensure an adequate representativeness, along with a number of different variables:

- Different regulatory regimes of the related countries;
- Different AF models (equity / rewards / donation, etc.) used to fund projects;
- Different R&I application domains of projects / platforms;
- If possible, different stages of innovation cycle of projects.

This sampling approach allowed an easy substitution of selected case studies when issues arose with regard to the involvement of stakeholders in case study interviews.

The analysis has been conducted through desk research and performing an in-depth interview with the companies who ran the AF campaign.

Table 5 List of performed case studies

Name	Crowdfunding method	Country	Application domain	Stage of innovation cycle	Amount raised	Platform on which the project was listed (for projects only)
• Platforms						
One Planet Crowd	Hybrid	Netherlands	Energy, Health, ICT Research and Innovation	-	-	-
Kiss Kiss Bank Bank	Reward	Belgium	Energy, Food and Healthy Diet, ICT Research and Innovation, Social sciences and education	-	-	-
• Projects						
Holoxica	Equity	UK	ICT Research & Innovation	Commercialisation	£ 120,000,00	ShareIn

Ocean clean up	Reward	Nether lands	Environment & Climate Action	Applied research	€2,154,282	-
Vox pop	Equity	Italy	ICT Research & Innovation	Early stage	€ 60.000	We are starting
Peerby	Donation	Nether lands	SMEs, Science communication, ethics, scientific education	Commerciali sation	€ 2,006,261	One Planet Crowd
FoodSniffer	Equity	UK	Food & Healthy Diet	Commerciali sation	$ 77,556	Indiegogo
Pesticides And Bees: Keeping Bees Safe In Our Gardens	Reward	UK	Environment and Climate action	Pilot testing	£ 7,886	Walacea
Apadrinauno livo	Reward	Spain	Agriculture and forestry	Commerciali sation	€ 14,715	Verkami
V3PO	Reward	Germa ny	Space, Agricolture and Forestry	Basic research	€ 40,000	Sciencestart er.com

Cross-analysis of case studies

In order to better understand the evidence gathered with the case studies and compare common or uncommon findings amongst different stakeholders, the study team has also prepared a cross-analysis of the 10 case studies. The cross-analysis was carried out following **several steps** and focusing on both a **micro and macro level analysis**.

With regard to the **micro-level analysis for projects**, firstly, the study team classified three sub-clusters of case studies according to the type of project or depending on the profiles of the organisations:

- **Innovation projects**: Apadrinaunolivo, FOODsniffer, The Ocean Clean Up, VOXPOP, Peerby
- **Research projects**: V3PO, Pesticides and Bees: Keeping Bees Safe in Our Garden
- **SMEs**: Holoxica

This operation was performed in order to allow a micro level analysis that takes into account the differences in the project profiles. Secondly, the focus was placed on findings related to three categories: *Benefits of Crowdfunding*, *Success factors of Crowdfunding*, and *Challenges and Bottlenecks of Crowdfunding*.

On the other hand, with regards to statements made by representatives from the platforms, the focus was placed on: *Success Factors of a Crowdfunding Platform, Main barriers for engagement with AF* and *Lessons Learned.*

The categories were chosen based on the different interview guidelines both for projects and platforms.

The following tables summarise the micro-level analysis conducted on projects and platforms.

Table 6 Cross- analysis of evidence included in case studies on AF projects

Subject of case study		Main evidence		
		Benefits of AF	**Success factors for a AF campaign**	**Challenges and bottlenecks of AF**
Project	**Innovative startups**	• Giving life to a project that otherwise might have never found the adequate financial resources to do so • Raising awareness for the project's cause (environmental, social, etc.) • Creating a network of contacts • Opportunity to establish new partnerships	• Use of different communication channels (e.g. social media, newsletters etc.) • Strong communication strategy (catchy message, avoid technicalities, professional video making material) • Preexisting network of contacts: focus on being proactive also before the campaign starts • Hiring a AF expert • Originality of the project launched • The credibility of the project's founders • Receiving some sort of mentorship or guidance from the platform chosen • Taking AF very seriously and foresee potential risks • Take stock of the lessons learned with previous experiences in AF in order to not repeat mistakes • Carrying out a feasibility plan before the launch of the campaign • Use a rewards strategy in order to give something back to the supporters and make them feel engaged in the project	• No experience with AF can lead to wrong decisions (amount pledged initially, duration of the campaign, etc.) • Choosing the platform can be tricky • Difficult to assess risks beforehand and predict the crowd's reaction • Lack of a cultural awareness on AF
	Research projects	• is very accessible even for those that do not have previous experiences with	• Use of different communication channels (e.g. social media,	• No experience with AF can lead to wrong decisions being made (amount pledged

Subject of case study	Main evidence		
	AF • Giving life to a project that otherwise might have never found the adequate financial resources to do so • Raising awareness for the project's cause (environmental, social, etc.) • Creating a network of contacts	newsletters etc.) • Strong communication strategy (catchy message, avoid technicalities, professional video making material) • Preexisting network of contacts: focus on being proactive also before the campaign starts • Hiring a AF expert • Receiving some sort of mentorship or guidance from the platform chosen • Taking AF very seriously and foresee potential risks • Presenting a controversial topic in order to attract more attention and appeal to the "crowd" • Use a rewards strategy in order to give something back to the supporters and make them feel engaged in the project	initially, duration of the campaign, etc.) • The fact that the AF platform chosen was relatively new implied that the network to which it reached out to AF was limited • Skepticism from related specific community • Difficulties encountered in distributing all the assigned rewards after campaign end • Lack of trust from potential backers (especially true for the older generation) due to the fact that they don't know/trust the project's founders and/or the platform on which the project is listed • Platform and project description not available in English • Lack of a cultural awareness on AF
SMEs	• Giving life to a project that otherwise might have never found the adequate financial resources to do so • Raising awareness for the project's cause (environmental, social, etc.) • Creating a network of contacts	• Use of different communication channels (e.g. social media, newsletters etc.) • Strong communication strategy (catchy message, avoid technicalities, professional video making material) • Originality of the project launched • Taking AF very seriously and	• AF platform chosen was relatively new therefore the network to which it reached out to was limited • Potential bottlenecks related to Equity based AF due to the fact that having many shareholders can complicate significantly the administration's ability to

Subject of case study		Main evidence		
			foresee potential risks	perform

Table 7 Cross- analysis of evidence included in case studies on AF platforms

Subject of case study		Main evidence		
		Success factors for a AF platform	Main barriers for engagement with AF	Lessons learned
Platforms	Reward based AF platform	• Offering at least some form of mentorship for fundraisers • Credibility of the platform based on national and international recognition • Existence of cultural, economic and societal factors that support the AF market landscape • Platform's overall competitiveness on the European AF market landscape (first French AF platform established) • Sharing success stories with other fundraisers to guide them • Existence of a reliable network	• Trust issues for investors with fundraisers and platforms regarding their ability to deliver (set appropriate pledged goal and decide the right duration of the campaign) • Ability to interact effectively with the investors and the "crowd", both before launching the project and during the AF campaign • Ability to interact effectively with the investors and the "crowd".	• Carrying out a feasibility plan before the launch of the campaign can be a useful tool for the fundraisers and the investor to reduce risks • Pledging the right amount of funds to raise is crucial for the positive outcome of the campaign • The regulation around AF has to adapt more in the future. Platforms are not yet acting as a European actor in this field and this does not make the EU very competitive on the AF market landscape, especially compared to American AF • Carrying out a feasibility plan before the launch of the campaign can be a useful tool for the fundraisers and the investor to reduce risks

	P2P lending, equity and reward based platform	• Combination of more than one AF model on the same platform (e.g. rewards, donation, equity, etc.) • Existence of cultural, economic and societal factors that support the AF market landscape • Credibility of the platform based on national and international recognition • Existence of a reliable network	• Explanation of AF risks and opportunities to a large crowd, especially in light of the multiple funding models offered on the platform • Ability to interact effectively with the investors and the "crowd", both before launching the project and during the AF campaign	• Compared to two years ago people are more aware of AF and, as a result, a successful AF campaign nowadays takes less effort and work than before • AF growing market must be accompanied also by an increase in financial skills from the fundraisers' and investors' side • Carrying out a feasibility plan before the launch of the campaign can be a useful tool for the fundraisers and the investor to reduce risks • Pledging the right amount of funds to raise is crucial for the positive outcome of the campaign

Following the micro-level analysis, the study team mapped all relevant statements made by the eight crowdfunding projects and by the two crowdfunding platforms interviewed and moved to the **macro-level analysis**. Once the macro-level analysis per category was conducted, a final cross analysis was also performed by joining the findings related to projects with those related to platforms, in order to pinpoint possible congruencies between the two stakeholders.

A. Crowdfunding projects

- Benefits of AF:

All crowdfunding projects - regardless of whether they are a startup, a research project, or a SME - highlighted the same three benefits of AF. Particularly, the three shared benefits listed include: (1) giving life to a project that otherwise might have never found the adequate financial resources to do so, (2) raising awareness for the project's cause (environmental, social, etc.), (3) creating a network of contacts.

- Success Factors of AF

All project categories have in common the following three success factors: (1) the effective use of communications channels, such as social media, (2) having a strong communication strategy made of catchy messages and visual accompaniment, (3) taking AF very seriously and foresee potential risks

With regard to **innovative startups and research projects**, these categories have four success factors for crowdfunding in common. These include: (1) a preexisting network of contacts: focus on being proactive also before the campaign starts, (2) hiring a AF expert, (3) receiving some sort of mentorship or guidance from the chosen platform (4) using a rewards strategy in order to give something back to the supporters and make them feel engaged in the project.

In addition, **innovative startups and SMEs** share the success factor related to the originality of the project launched. Both, therefore, believe it is relevant to ask the following question in order for the campaign to be successful: how many similar projects are there on the market?

Research projects independently highlighted the importance of presenting a controversial topic in order to attract more attention and appeal to the "crowd".

Overall, it can be said that the success factors highlighted are all focused on the importance of effectively engaging with the "crowd" and the established network, and receiving some sort of help or guidance when managing with AF.

- Challenges and Bottlenecks of AF

Concerning challenges and bottlenecks there is **no evidence shared by all three types of projects**.

However, **innovative startups and research projects** pointed out two common bottlenecks for the campaign: (1) No experience with AF can lead to wrong decisions when launching a campaign (amount pledged initially, duration of the campaign, etc.), (2) lack of a cultural awareness on AF can reduce the impact of the campaign.

Furthermore, it seems that **research projects are particularly concerned with technicalities** related to the AF platform chosen. For example, one research project pointed out that a challenge was making people trust an online platform enough to add their money on it, or the fact that the project description was not available in English on the platform.

The **SME project observed that choosing a relatively new AF platform could represent a challenge** because it might not have a very large network to count on, thus, requiring that the fundraisers put in extra effort to reach out to people during the campaign.

Overall, depending on the project's profile, AF presents different bottlenecks and challenges. The evidence proves a particular affinity between research projects and innovative startups in the barriers faced, which can be mainly attributed to lack of cultural awareness of AF in their fields (i.e. research and innovation).

B. Crowdfunding platforms

- Success factors for an AF platform

When asked what the **success factors are for an AF platform**, the interviewees focused on two particular aspects: (1) a reliable network and (2) national/international recognition. Furthermore, it seems that these two aspects are largely entangled with cultural, economic and societal factors, which are critical for the development of the AF market landscape. It is worth noting that one of the two platforms pointed out that another success factor could be offering different AF models (rewards, donation, equity, etc.) in order to give investors greater flexibility.

- Main barriers for engagement with AF

The two AF platforms highlighted different barriers for engagement with AF. On the one hand, the platform that offers different AF models pointed out that it might be difficult to explain to a large crowd the risks related to each AF models offered, whereas the other platform focused on possible trust issues investors could have regarding the ability of fundraisers or platforms to deliver effectively. Both agree that a main barrier for engagement with AF is the ability to effectively interact with the "crowd".

- Lessons learned

Each platform presented different lessons learned from their experience with AF. One of the two platforms observed that an increase in financial skills by both fundraisers and investors is very much needed in order to support AF's increasing popularity. On the other hand, the second platform stressed on the lack of a regulatory harmonisation around AF that does not make the EU very competitive on the AF market landscape, especially compared to American AF. Both platforms agreed that a feasibility plan, carried out by the project teams beforehand, could help to determine correctly the amount to pledge and the duration of the campaign, which are both fundamental aspects according to the interviewees.

C. Crowdfunding projects vs. platforms

Finally, projects and platforms have been compared. The evidence gathered proves that there is a general and very solid agreement concerning the benefits of AF for both actors, which also transcends the specific nature of the subject. Overall, it can be noted that platforms and projects touched upon several topics in a similar way. Specifically**, both focused on the importance of networking and on possible difficulties related to interacting with a large crowd**. Furthermore, platforms, innovative startups, and research projects agreed that receiving guidance and mentorship for AF can represent a success factor in a campaign and can be an added value for a platform.

ANNEX 11 COUNTRY FICHES

After an initial data gathering phase, the templates were restructured according to the available evidence, mainly collected through an in-depth literature review, and by using other ECN project results as a basis. Additional desk research was carried out to further refine the regulatory information contained in ECN reports with more general findings about the alternative finance market in the country. The draft country fiches were subjected to a public consultation phase. The final country fiches have different levels of depth of coverage, depending on the data available through desk research and final clarifications from the experts.

Table 8 List of countries with country fiches

Austria	Greece	Romania	Bosnia and Herzegovina
Belgium	Hungary	Slovakia	Moldova
Bulgaria	Ireland	Slovenia	Ukraine
Croatia	Italy	Spain	Iceland
Cyprus	Latvia	Sweden	Israel
Czech Republic	Lithuania	United Kingdom	Tunisia
Denmark	Luxembourg	Turkey	Norway
Estonia	Malta	Serbia	Switzerland
Finland	Netherlands	Montenegro	US
France	Poland	The Former Yugoslav Republic of Macedonia	China
Germany	Portugal	Albania	

Each country fiche is organised in 4 areas:

1. Role of Alternative Finance - where information about the volume of the market (including subdivision by funding models), trends, and platforms are available.

2. Regulatory Context. - this section highlights the existence or not of a national specific regulation applying to AF, relevant general regulation and prospectus requirements.

3. Support Policies- where information about support policies are collected: matching funds, state-aid, tax benefits, and eventually existing guidelines addressing AF.

4. Additional Insight - success stories of R&I project and platforms, and best practices are highlighted.

A simplified categorisation facilitates the comparison amongst the status of the development of AF in different countries. Countries are divided in three categories according to their volume of AF per capita. The classification is based on the data provided by (Cambridge-KPMG) report. The division between categories is visually explained by a speedometer associated with each country. These categories are meant to simplify the understanding of the different markets by providing a comparison. However, this comparison takes into account only one feature of the market, hence it does not aim to provide a judgment of the quality of the market.

Categories by volume of alternative finance per capita:

- **High**

This category includes the top 5 countries in terms of volume of alternative finance per capita among the 41 analysed: UK, Estonia, Finland, Latvia, and The Netherlands. In these countries, the volume of alternative finance per capita is over EUR 6. However, there is a huge gap between UK (characterised by a volume of EUR 65.88 per capita) and the other outstanding European countries (with a volume per capita ranging between EUR 6 and 24).

- **Medium**

This category includes 10 countries characterised by a volume that ranges between EUR 1 and 6 per capita. This means that alternative finance is already spread in these countries even, if its level is not as high as in the top 5 countries under analysis.

- **Low**

The remaining countries have a per capita volume lower than EUR 1. Alternative finance is clearly not very common in these economies at the moment.

Notice that US and China are not included in the ranking. These two counties represent the most developed alternative finance markets in the world.

The Country Fiches for 43 countries (including China and US as additional countries added beyond the scope of the tender) are available online at: http://crowdfunding4innovation.eu/country-fiches. In addition, each country fiche can be downloaded as a visually attractive .pdf.

ANNEX 12 EXCHANGE RATES

Exchange rates: EUR/currency

Source: ECB

https://sdw.ecb.europa.eu/browse.do?node=2018794

	CHF	GBP	USD
2015	1.0679	0.72584	1.1095
2014	1.2146	0.80612	1.3285
2013	1.2311	0.84926	1.3281
2012	1.2053	0.81087	1.2848
2011	1.2326	0.86788	1.392
2010	1.3803	0.85784	1.3257
2009	1.51	0.89094	1.3948
2008	1.5874	0.79628	1.4708
2007	1.6427	0.68434	1.3705
2006	1.5729	0.68173	1.2556
2005	1.5483	0.6838	1.2441
2004	1.5438	0.67866	1.2439
2003	1.5212	0.69199	1.1312
2002	1.467	0.62883	0.9456
2001	1.5105	0.62187	0.8956
2000	1.5579	0.60948	0.9236
1999	1.6003	0.65874	1.0658

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The study assesses if alternative finance has the potential to help Europe address the problem of access to finance for innovative companies and bridge the gap in terms of access to risk capital, and if EU action is needed to support development of the sector. The study is structured around three main objectives 1) quantifying and qualifying the size of the alternative market for research and innovation; 2) analysing the challenges limiting development of the AF, and AF for research and innovation in particular; 3) providing final recommendation of EU actions to address those challenges and to exploit the opportunities of alternative finance for research and innovation.

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