Executive summary

Evaluation of the funding programme "INVEST - Venture capital grant"

on behalf of the Federal Ministry of Economic Affairs and Energy (BMWi)

submitted by:

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Content and objectives of the study

The funding programme "INVEST - Venture capital grant" supports venture capital financing from private investors[1] in young, innovative companies. The programme, which has been in existence since May 2013, was subjected to an initial evaluation in 2016 and was modified in key elements at the beginning of 2017. These changes were based on the results of the first evaluation by the Centre for European Economic Research, Mannheim.

After a programme period of about 7 years a new evaluation was due, which may also present medium-term effects of the support programme. In the meantime, the programme has been active for longer, thousands of companies and investors have participated and it has gained a certain degree of publicity. The aim was to examine, whether and which effects of the grants approved to date (approx. EUR 105 million) and the grants received (approx. EUR 75.5 million) can be proven and how the programme changes in 2017 have affected the utilisation by the target groups and the achievement of the programme objectives, and how they are perceived and assessed in the market in general.

Furthermore, it had to be examined whether the current market situation in Germany still justifies this instrument - or possibly to a greater or lesser extent than before.

The aim of the grant programme is to ease the access to venture capital for young innovative companies. In order to achieve this, private individuals get a refund of 20% of their investment. On the one hand, this risk relief can result in a leverage effect for experienced investors. On the other hand - and this is a main focus of the programme - additional new business angels, so-called Virgin Angels, are to be mobilised. One of the subjects of the evaluation is to determine the extent to which this has been achieved so far and whether the effects could perhaps be improved even further by taking appropriate measures.

In addition to assessing the funding activities and their effects, the evaluation will develop recommendations for the future design and handling of the guideline based on the findings of the analysis. In particular, the viewpoint of the beneficiaries on companies´ and investors´ side as well as the corresponding peer and control groups are taken into account, but also qualified statements by competent market observers and experts.

A summary at the end of the report presents the findings with regard to some key questions that arise for the further development of the Directive.

[1] In this report, the masculine form is used in the designation of persons or groups of persons solely for reasons of better legibility. It expressly refers to persons of all genders equally.

Definitions, methodology and sources

In order to determine the effects of the programme, a differentiation was made between subsidised and unsubsidised investors and subsidised and unsubsidised companies after the relevant segments on both sides had been delimited.

"Participating investors" for the purposes of the evaluation are those potential or actual investors who have applied for or received a grant under the programme for at least one investment in at least one enterprise. Those who received at least one grant approval are then referred to as "subsidised investors".

The participating investors in the "INVEST" programme are supposed to be so-called business angels. A business angel is generally understood to be a private investor who provides a company with venture capital, but also additional support in the form of know-how, consulting / coaching and network or contacts. Neither the amount of the (available or required) capital nor the participation rate or the type and extent of other support of the target companies is specified in a business angel definition. In fact, one can also refer to those investors as business angels, who so far only have investment intentions and / or opportunities. Whether the programme participants are actually business angels in the narrower sense or primarily passive investors in venture capital is generally not apparent from the programme data and can only be estimated by means of surveys, interviews or random analysis of the actors. For the analysis of programme activities, the generic term of investors is therefore the better choice.

In the case of 'unsubsidised investors', no distinction was made between participating and other investors. All unsubsidized investors were considered as control group on the investor side in the course of the analysis. This is due to the fact that (a) it is difficult to obtain information about this target group anyway, and (b) there are hardly any - even less externally identifiable - criteria that distinguish an investor or potential investor from (any) other people. De facto, it is mainly an entrepreneurial interest, a certain readiness to take risks and available financial resources that sets him apart from other people. Our survey shows that personal contacts, also in the private sector, are the reason for venture capital investments in young companies in many cases. The investors then belong to the group of "friends & family" supporters and become investors less through systematic, targeted orientation than through the factor of chance or network.

The 'funded participation' of the investor is here understood to be such venture capital financing for which the investor has received a grant under the aid scheme. This amounts to 20% of the total investment eligible for funding.[2]

Companies with at least one re-funded venture capital financing will be referred to below as 'subsidised companies' for the sake of clarity and clarity of wording, although the company can only benefit indirectly via the investor, who receives the grant.

In this study, "unsubsidised enterprises" are defined in 2 groups:

1. "Eligible enterprises" are those that are participants in the Programme, have received a funding eligibility certificate at least once, but are not subsidised enterprises.
2. Companies in the "control group" are those that have never applied for INVEST eligibility and were selected from the total German portfolio of companies according to the following criteria:
   - ❑ Start-up as of 2010 or younger (older companies play practically no role in the funding activities of INVEST)
   - ❑ Incorporated companies
   - ❑ First WZ-code[3] (main activity) in one of the innovative industries according to INVEST (positive) list

   A deliberately random selection was made from the resulting group of approximately 22,400 companies. In principle, all of these companies could have used the programme for their own benefit - provided they showed the appropriate interest, required capital and were looking for an investor.

The difference between the group of eligible enterprises and the control group of enterprises, which is important for analysis purposes, is that the former are known to have been or to be interested in venture capital investment(s), having applied for and received an eligibility certificate for the programme. A stronger growth orientation as well as a basically existing (at least from their own point of view) investor suitability and an openness towards the financing instrument VC participation in general can therefore be assumed. Thus, the group of eligible companies is closer in its characteristics to the subsidised companies than the control group.

The control group and the group of eligible enterprises are together referred to as the group of 'unsubsidised enterprises' for the purposes of this report.

Companies participating in the programme that applied for the eligibility certificate and did not receive it, apparently violated the eligibility requirements in one or more

[2] No further funding will be granted if the thresholds are exceeded (EUR 500 thousand per year and investor).

[3] Classification of Economic Activities

respects and therefore do not (or no longer) belong to the target group of the programme. Hence, they were not considered further in this report.

An essential basis for the evaluation is the database (in short: "BAFA database") provided by the Federal Office of Economics and Export Control (BAFA) for the individual processes of the programme activities. This BAFA database contains on the one hand the list of companies that have submitted an application for the eligibility certification at least once and on the other hand the list of investors that have submitted an application for the funding of their venture capital financing to a company at least once. Since the applications of the investors are always connected to a concrete, planned investment, both lists could be linked via the transaction number of the company. The BAFA database contains all programme activities from the start of the programme until May 28th, 2019.

For the impact analysis, the companies participating in the programme were compared with the Markus company database[4] of the Verband der Vereine Creditreform e. V. in order to carry out structural analyses of this group of companies. All of the participating eligible companies (3,522) could be identified in the Markus database. For the group of programme participants, these companies formed the basis of the further analysis and population for the survey.

From the Markus database Data were also obtained for the control group of non-subsidised companies. The total number of approx. 22,400 companies according to the criteria mentioned above was reduced by a random generator[5] to the sample size of 3,526 that we selected. The background to this figure was that each WZ group should be represented by a minimum number of companies, while maintaining the frequency distributions, in order to neutralise possible individual phenomena.

In order to best achieve the evaluation objectives, the project was carried out using several different, complementary quantitative and qualitative methods. While the analysis of existing data was carried out via literature analysis, internet and database research, a separate primary survey was also conducted by means of personal both structured and unstructured interviews, telephone interviews and online surveys as well as observations.

This included the effectiveness, the advantages and disadvantages of the programme, the implementation and many individual aspects of programme design and implementation as well as the basic access to this funding. In all discussions,

4 According to Creditreform e.V., the Markus database is the most complete database of all economically active companies in Germany. All companies entered in the commercial register are recorded there.

5 Creditreform e.V. has a corresponding automated generator which supplies this random sample, according to the criteria specified above.

as in the online survey, the assessment of the market situation (capital supply and demand in the current structures, relevant trends) was also taken into account.

For this purpose, four different questionnaires were designed for the group of programme participants (subsidised investors / companies) and the general target group (unsubsidised investors / companies) and coordinated with the BMWi. These preliminary questionnaires were processed in numerous personal interviews and simultaneously checked for completeness and accuracy with regard to the aspects to be investigated.

The 20 personal interviews planned for each group in the project were organised approximately half each from the programme database and from external contact sources for the groups of unsubsidised investors and companies. This means that 10 investors or companies who have not yet been in contact with the programme were to be interviewed personally.

In order to find such companies and investors, personal networks, multipliers and Internet research were used.

The personal interviews were conducted between July and October 2019. An online survey was conducted from 25 August to 18 October 2019 using the agreed questionnaires. For this purpose, all programme participants were invited according to the BAFA database (adjusted for the interview partners).

From this address list, 4,379 subsidised investors were contacted and 1,044 unsubsidised. Among the companies, 1,856 unsubsidised / eligible and 1,636 subsidised were invited.

On the other hand, companies in the control group were invited to participate in the online survey. As expected, the response rate in the control group was comparatively low, but the absolute number of responses created a reliable data basis, however.

In order to supplement the control group of (unsubsidised) investors beyond the programme participants, numerous multipliers (e.g. incubators, business angel networks, family offices) were addressed and asked to pass on the survey link. Overall, a very satisfactory number of questionnaires were also received in the control group.

As result, the following evaluable interviews and questionnaires were available:

	Personal Interviews	Online survey participants	Total questionnaires (share of the total number)
Subsidised companies (Σ = 1,656)	20	409	429 (25,9%)
Subsidised investors (Σ = 4,399)	20	625	645 (14,7%)
Unsubsidised Companies (Σ = 5.392)[6]	20	774	794 (14,7%)
Unsubsidised Investors[7]	20	516	536

Tab. 1: Overview of data material of the primary data collection

In addition, the accompanying market observation and analysis was supplemented by structured, partly guideline-based surveys / interviews. For this purpose, various events of the start-up and investor / VC financing scene were attended. On the one hand, the lectures and panel discussions that took place gave a certain insight into the market development and trendss, and on the other hand, opportunistic / spontaneous talks or short interviews with business angels, market experts and start-ups were conducted on these occasions.

In addition, 10 interviews with market experts in Germany and 6 interviews with experts abroad were conducted within the framework of the project and on the basis of coordinated, pre-developed guidelines.

For further details on methodology and sources, please refer to the full version of the final report.

6 Eligible enterprises (1,866) and control group (3,526).

7 For the control group of investors, a total number cannot be indicated appropriately.

Main results of the study

Within the framework of the INVEST support programme, EUR 105 million in grants (excluding acquisition grants) have been approved to date (as of 28 May 2019). This has benefited 4,399 investors and 1,656 companies.

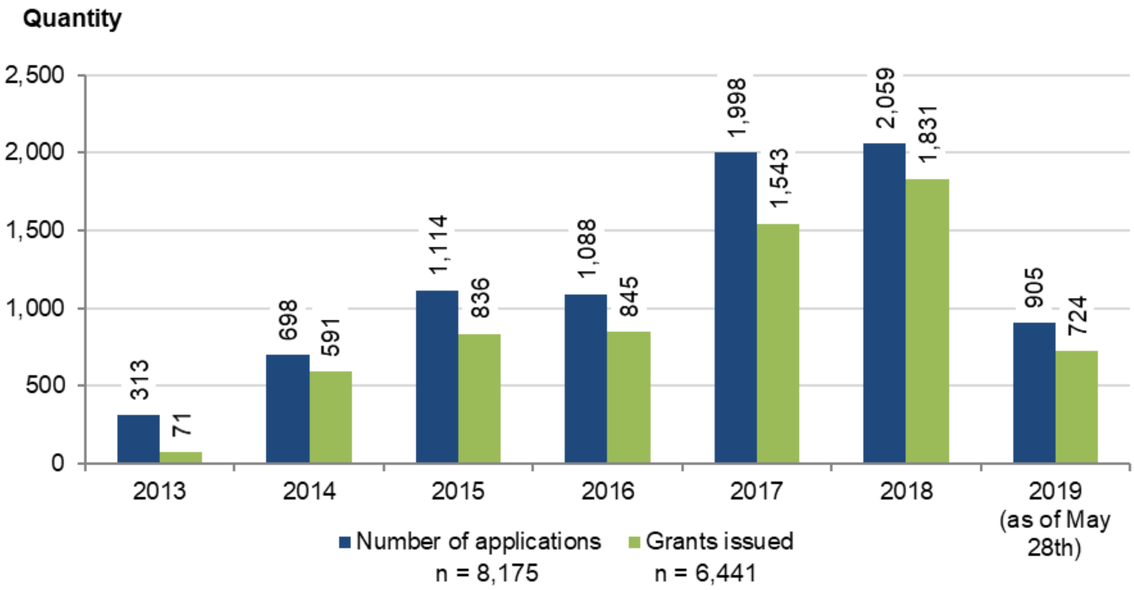


Fig. 1: Applications from / Grants for investors since programme start

The average subsidised investment is approximately EUR 81.7 thousand, the average grant is approximately EUR 16.3 thousand. The minimum participation sum of 10 TEUR was applied for and approved 377 times (6% of the approved instalments).

Contacts between investors and companies are mainly established through personal networks or result from already existing business or private relationships.

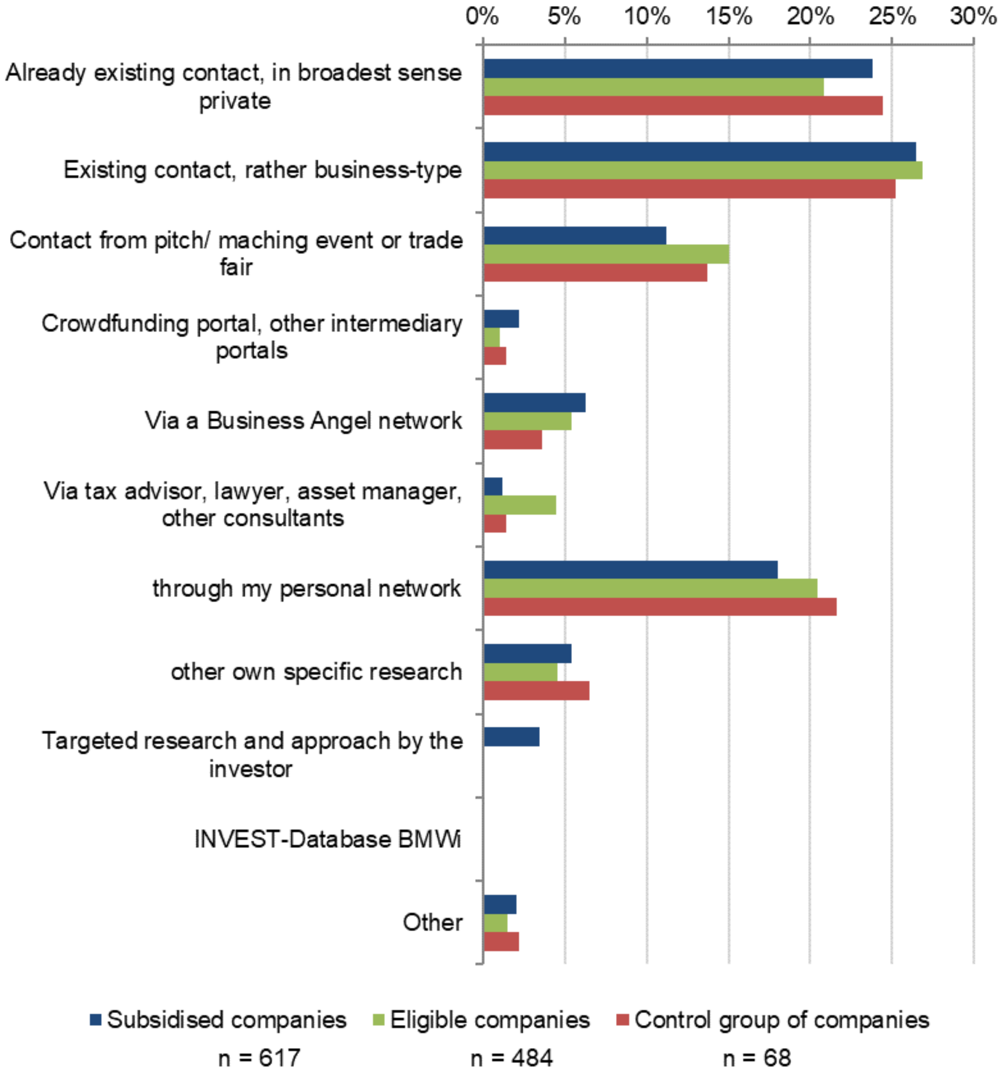


Fig. 2: Establishing contacts in the search for investors, survey answers from company side

More than half of the subsidised companies (54%[8]) say that they were more successful in finding investors because of INVEST.

In addition, 44% were able to carry out development works faster with the additional capital and 33% were able to realize an earlier market entry or open up new markets. The additional capital also enabled additional projects (27%), the use of a time advantage in developments (26%) and capital expenditures (23%).

From these effects it can be deduced that the funding leads directly to the development of competitive advantages for the companies, after all, in significantly more than a quarter of the companies.

[8] The percentages stated in the survey results always refer to the fraction of the survey participants which may be considered robust in all groups due to the overall extensive data basis.

The companies also qualified the know-how gain through the involvement of a business angel (21%) and the better network (20%) as a clearly positive effect of INVEST.

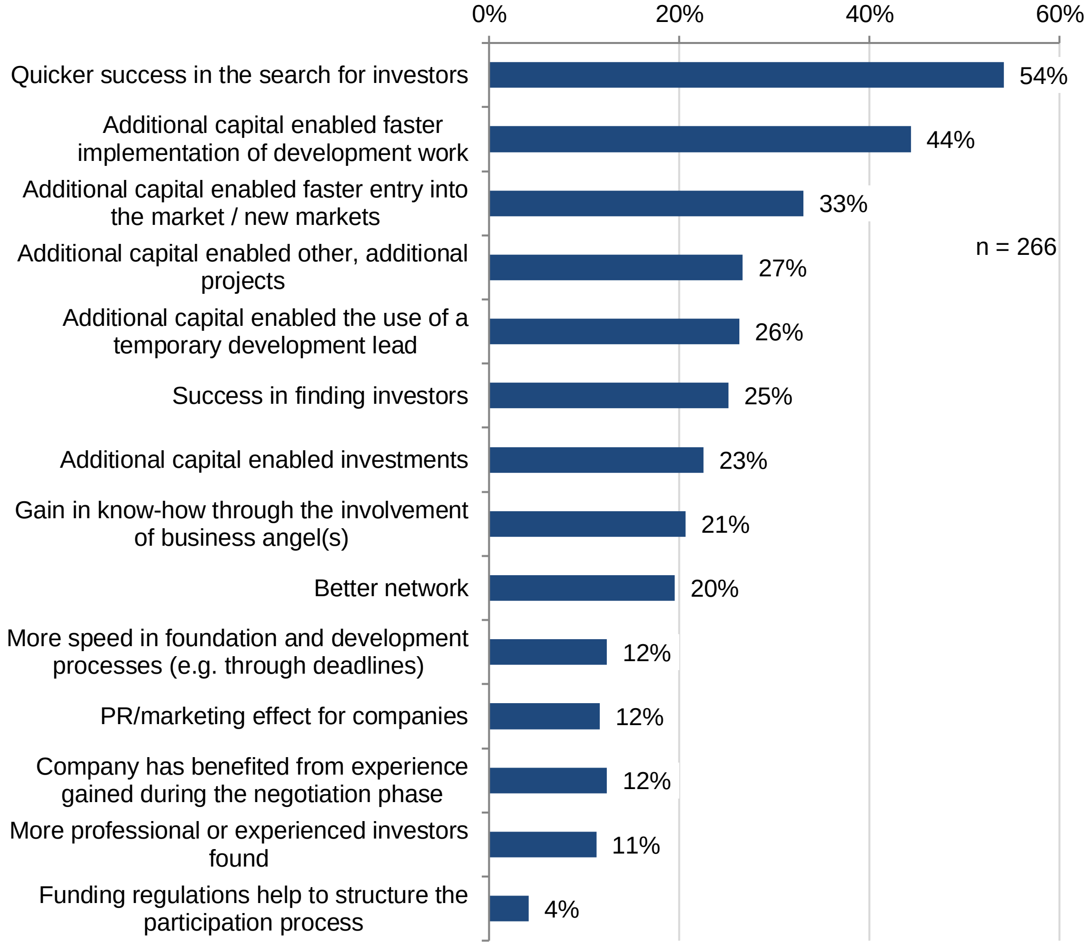


Fig. 3: Effects of participation in INVEST for companies - from the point of view of the companies supported (multiple selection possible)

It is interesting to note that of the investors who were also asked about their views on this point, i.e. what effects have occurred at the companies in which they have invested, 88% attribute the success in finding investors to the funding programme. With regard to speed, the approval rate is even higher at 93% and 97% say that the companies received more money because of INVEST.

The funded investments go to already existing companies, as the guideline requires a capital company as a legal form. However, 24% of the subsidised enterprises stated that their first external investment was INVEST funded and that this investment was one of the main reasons for (being able to) setting up the enterprise (Fig. 4).

Thus, almost a quarter of the companies subsidised would probably not have been established without INVEST support, or possibly would have been significantly delayed.

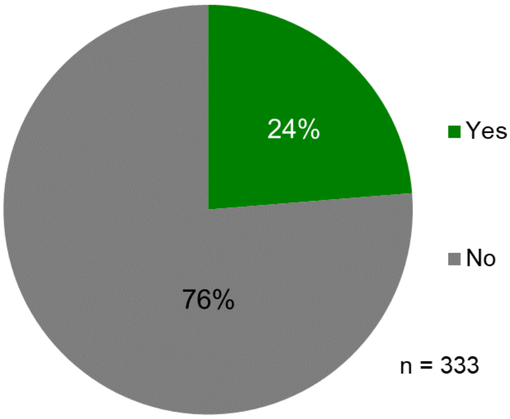


Fig. 4:
Proportion of subsidised enterprises who said that the INVEST-funded participation was a major impetus for the establishment of the enterprise or even made the establishment possible

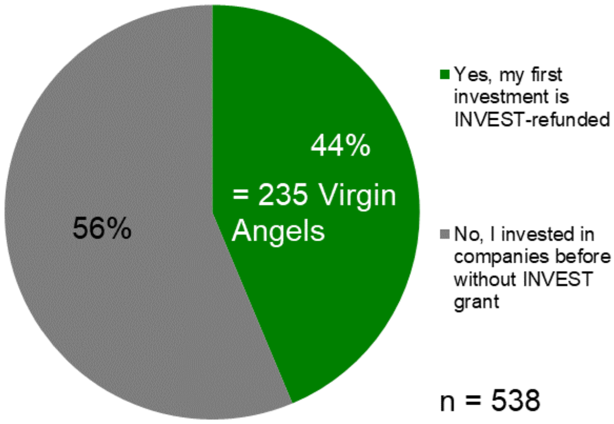
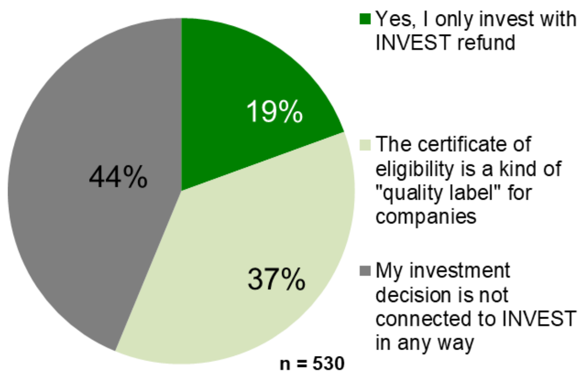


Fig. 5:
Virgin Angels' share of subsidised investors

235 investors confirm that they applied for and received INVEST funding directly for their first investment. This corresponds to 44% of the participating subsidised investors and represents the very important target group of the so-called **Virgin Angels** for the programme (Fig. 5).

If we extrapolate the quota of Virgin Angels to all programme participants, approximately 1,935 Virgin Angels have been mobilised or reached by the programme so far. With a total of approx. 10-12,000 Angels in Germany, this is considerable. It is due, among other things, to the positive experiences of the programme participants, the domino effect of a growing number of programme users, and the increasing popularity level. INVEST has proven that it can contribute to activating a part of the overall still often unused potential of private investors.

If these new angels in future enter into approximately as many instalments as the investors have done so far (4.5 (eligible) participations per supported investor), this results in 8,707 participations in companies amounting to approx. EUR 711 million (= EUR 8,707*81.7 thousand), which could be mobilised by INVEST in Virgin Angels. This is a direct effect of the programme.



Furthermore, the question arises, whether the eligibility certificate of the BAFA is a decisive investment criterion for the investors. In response to the relevant question, 103 of 530 funded investors (19%) answered that they only invest with INVEST funding.

Fig. 6: Influence of the INVEST funding option on the investment decision (subsidised investors)

It is also important with regard to the programme objectives that the group of active private investors or business angels is actually reached, so that the money provided has the character of smart money. Our survey has predominantly shown that the investors provide extensive support services and that these are either required or actually used. The cooperation between investors and companies works almost smoothly in the overwhelming majority of cases (school grades 1.8 to 1.9 in the subsidised cases) and is often perceived as very beneficial.

A key indicator for assessing the effects of a funding programme is the mobilisation effect. This indicator shows how strongly the grant contributes to stimulating additional private funds for the purpose of the promotion. To quantify this mobilization effect, the investors were divided into 4 groups based on the results of the survey. The reason for this was the information whether and to what extent the respective investor maintained, increased or reduced his private investment amount due to INVEST. The net effects calculated on this basis are shown in column (4) of the following table.

- ❑ The greatest net effect is to be found among those subsidised investors who were motivated to invest in the first place by INVEST or who learned of such investment opportunities only through the programme. Here, the net effect is 400% (due to the 20% subsidy rate). The full investment amount of this group (Table 2: Group "A") can be described as venture capital provided by INVEST.
- ❑ If investors increase their planned investment by exactly the amount of the INVEST grant, the net effect is 0% (Group B).
- ❑ Another group of subsidised investors stated that they had increased their investment because of the INVEST funding, on average by 27%, with a net effect of +35% (*formula: (Additional investment sum ./. grant)/ grant*; Group C).
- ❑ The investors referred to as Group D in Table 2 would have invested the same amount without the grant, so the net effect is -100%.

Other subsidised investors confirmed in the survey a positive effect of INVEST on their commitments, but did not quantify it. These are not taken into account (not included in the table and calculation).

Group of investors (as described above)	Relative Share of total investors %	Issued grant of the group 1,000 EUR	Net effect of the group %	Leveraged private Investment amount 1,000 EUR	Total Venture Capital provided by INVEST 1,000 EUR
(1)	(2)	(3)	(4)	(5) = (3)*(4)	(6)=(5)+(3)
A	19.8%	20,801	400.0%	83,203	104,004
B	26.8%	28,193	0.0%	0	28,193
C	19.6%	20,629	35.0%	7,220	27,849
D	33.8%	35,585	-100.0%	-35,585	0
	100.0%	105,208		**54,839**	**160,046**
Mobilisation effect = Leveraged VC (5) / Total amount of grants (3)				**52.12%**	

Tab. 2: Calculation of the mobilisation effect of INVEST

The subsidy (column 3) multiplied by the net effect (4) gives the investment sum leveraged by INVEST, i.e. the additional money that investors make available to companies as a result of INVEST, here EUR 54,8 million (5), based on the evaluation period. Together with the grant (3), this results in (5) the total venture capital (6) provided by INVEST, here: approximately EUR 160 million.

In total, the calculation leads to a mobilisation effect of 52.12%. Compared with the first evaluation of the programme, the mobilisation effect has increased slightly from 50% to 52.12%.

According to this, for every euro issued as INVEST grant, investors invest (additionally) an average of EUR 0.52 in young innovative companies. In other words, statistically speaking, the full amount of the grant paid out is not only passed on to the companies by the investors, but is actually increased by more than half.

In the survey, the individual framework conditions and criteria for funding were intensively discussed both with investors and with the companies . In summary, the results showed a predominantly clear agreement with these funding conditions. In particular, the various amendments to the directive from 2017 were explicitly questioned and appreciated by the two groups.

The newly created instrument of the convertible loan has met with a highly positive response, both in terms of the statistically relevant number of use cases and the qualitative importance mentioned in interviews.

With regard to the exit grant, 54% of the subsidised investors stated that it had a significant impact on their investment decision. As many as 73% even feel that it enabled them to make further or higher investments.

	Subsidised investors	Control Group investors
	n = 484	n = 294
"just right"	81%: Investors can be natural persons or limited liability corporations	76%: Investors can be natural persons or limited liability corporations
	80%: Eligibility of follow-up financing	70%: Eligibility of follow-up financing
	76%: Subsidy instead of tax allowance Promotion	69%: Subsidy instead of tax allowance Promotion
	70%: Acquisition grant of 20 %	
"obstructive"	28%: No employment of the investor in the company	35%: No employment of the investor in the company
	27%: Only first-time participation eligible	28%: No debt-financing of the investment
	23%: Only natural persons may be shareholders of the investment company	25%: Only first-time participation eligible
	23%: Exit allowance for natural persons only	24%: Investment company may consist of a maximum of 6 shareholders
	23%: No debt-financing of the investment	24%: Only natural persons may be shareholders of the investment company
"irrelevant"	22%: Investment company may consist of a maximum of 6 shareholders	20%: Investment company may consist of a maximum of 6 shareholders
	17%: Minimum participation of 10 TEUR	19%: Convertible loan eligible (within 15 months)
	17%: Convertible loan eligible (within 15 months)	18%: Entering into and holding investments must be part of the business purpose of the investment company
"too high/ tall/ wide"	13%: Minimum holding period of 3 years	13%: Minimum participation of 10 TEUR
		11%: Minimum holding period of 3 years
"too low/ small/ tight"	23%: Acquisition grant of 20%	29%: Acquisition grant of 20%
	20%: 3 mio. € investments are eligible per company	21%: Companies with up to 50 employees eligible
	17%: Companies with up to 50 employees eligible	20%: Only first-time participation eligible
		20%: 3 mio. € investments are eligible per company

Tab. 3: Overview of the investors' assessment of the individual aspects of the Guideline (highest percentage values in each case)

	Subsidised companies	Eligible companies	Control group of companies
	n = 273	n = 397	n = 115
"just right"	87%: Investors can be natural persons or limited liability corporations	83%: Investors can be natural persons or limited liability corporations	79%: Investors can be natural persons or limited liability corporations
	80%: Subsidy instead of tax allowance Promotion	78%: Companies must be corporations	68%: Companies must be corporations
	79%: Eligibility of follow-up financing	73%: Eligibility of follow-up financing	63%: Eligibility of follow-up financing
	75%: Companies must be corporations		63%: Subsidy instead of tax allowance Promotion
"obstructive"	29%: Only natural persons may be shareholders of the investment company	26%: Only first-time participation eligible	32%: Only natural persons may be shareholders of the investment company
	28%: Only first-time participation eligible	25%: No employment of the investor in the company	23%: Only first-time participation eligible
	28%: No employment of the investor in the company	23%: Exit allowance for natural persons only	23%: No employment of the investor in the company
		23%: No debt-financing of the investment	
"irrelevant"	22%: Investment company may consist of a maximum of 6 shareholders	23%: Investment company may consist of a maximum of 6 shareholders	24%: Convertible loan eligible (within 15 months)
	18%: Convertible loan eligible (within 15 months)	21%: Minimum participation of 10 TEUR	24%: Entering into and holding investments must be part of the business purpose of the investment company
	17%: Only first-time participation eligible	17%: Convertible loan eligible (within 15 months)	24%: No employment of the investor in the company
"too high/ tall/ wide"	17%: Minimum holding period of 3 years	14%: Minimum holding period of 3 years	14%: Turnover of the company must not exceed EUR 10 million
		12%: Turnover of the company must not exceed EUR 10 million	
"too low/ small/ tight"	37%: Maximum participation of 500 TEUR	31%: Maximum participation of 500 TEUR	43%:Acquisition grant of 20%
	33%: Acquisition grant of 20%	27%: Acquisition grant of 20%	32%: Maximum participation of 500 TEUR
	27%: 3 mio. € investments are eligible per company	20%: 3 mio. € investments are eligible per company	29%: Only companies younger than 7 years eligible
			26%: 3 mio. EUR Investments are eligible per company

Tab. 4: Overview of the assessment of the individual aspects of the Guide-line by the companies (highest percentage values in each case)

Summary and recommendations

INVEST contributes with many other measures of the federal and state governments to the support of entrepreneurial mentality and entrepreneurship in Germany as a whole. This effect has been qualitatively confirmed by interviews and questionnaires. How many additional start-ups this has led to and will lead to in a certain period of time, solely on the basis of INVEST, cannot be reliably quantified, since in some cases several grants were issued in favour of the same company and the grants have a combined or successive effect.

INVEST promotes particularly innovative companies. This can be proven, among other things, in the share of turnover generated by new products and services of the companies supported (86% compared with 64% of the control group). However, INVEST is not a direct innovation promotion scheme, like various technology promotion programmes of the Federal Government and the Länder. It does not provide funding on a project-related basis, but on a company basis. The companies are not subject to any restrictions according to the guideline as to what the funds are to be used for. However, the survey has shown that 59% of the funds flow directly into innovation projects. Since innovations often trigger follow-up projects, further effects follow.

The survey of programme participants and the control group revealed a slightly higher growth orientation among the companies receiving support. In absolute terms, the difference in planned new hirings is thus not very pronounced with 20 employees in average, compared to 18 and 15 respectively. The macroeconomic effects are also very positive. Investors, however, rate the INVEST-supported investments overall similarly to their other investments. But it must be said that the business angel investments considered here are, by definition, predominantly investments in a very early phase of the company and in risky projects. If one keeps this selection of projects in mind, even a "game drawn" between subsidised companies and other companies is a success.

Furthermore, it has been shown that the rate (approx. 6%) of total failures (insolvencies) among the INVEST-supported start-ups is surprisingly low[9] at approx. 100 cases in total. However, in the survey we found "by chance" that a number of the companies were absorbed into larger structures. Whether this represents in effect a success or failure could not be determined during the evaluation.

Based on a definition of "sales rockets[10]", we were able to demonstrate that the companies receiving support are more successful than average. The Keynesian-

[9] Common theses assume that every 3rd start-up disappears from the market within the first 3 years. Undeniably, the quotas vary according to the industry segment.

[10] Our definition: a quadrupling of turnover in 4 years

based HERMIN[11] impact model also shows a significant employment effect. Subsidised companies created a total of more than 32,000 jobs, almost 5,000 more than the control group. At least 8,000 jobs would not have been created without INVEST[12]. If the promotional effect of the programme is reduced only to jobs notionally, one new job would have been created at a cost of around EUR 13,125[13] - a decidedly "cheap" effect. According to the model calculation, the tax effect (welfare gain for society) is about 20% higher in the subsidised companies than in the control group, which corresponds to about EUR 9.2 million additional tax revenues per year.

Neither the survey nor the economic analysis shows a clearly positive, distinct effect on capital expenditure, which normally serves as a growth indicator. However, this is largely due to the fact that the projects supported are located in less capital-intensive sectors - typical INVEST participants invest mainly in servers and computing power, with growth taking place via the number of employees mainly. Nevertheless, most of the funded projects with the increased use of the Directive from 2017 are still quite young, in order to show significant variations in the success of the projects. The hypothesis that business angel investments tend to flow into the more difficult, complex, risky projects is also plausible - so that there must naturally be a wide spread in terms of success. This (the higher level of risk) is after all an important prerequisite for legitimising the funding.

The INVEST support programme is one of several measures in the current toolbox of economic policy aimed at promoting young, innovative companies. In the canon of these measures, the programme is justified and even necessary in its current and future scope, according to our study.

It became apparent that by no means all young innovative companies in Germany are successful in finding the financing they are aiming for. The offer is either too small overall or not accessible locally. The estimated financing gap in the German business angel market despite existing INVEST funding amounts to approx. EUR 736 million; before or without INVEST funding it was calculated at approx. EUR 859 million. INVEST has thus already contributed EUR 123 million to closing this gap. The financing gap can be attributed to market failures in the area of start-up financing and in business angel investments in general, which is particularly pronounced in various segments of the market.

The financing gap for business angel investments was located especially in the seed and pre-seed phase, according to expert discussions, a phase in which young

[11] For more details to this model and calculation, please refer to the long version of the final report.

[12] For the derivation of these figures, we refer to the long version of the report, in brief: Since at least one quarter of the companies would not have been founded without INVEST, we calculate this share of the total employment effect to be the "result account" of INVEST.

[13] Total allocation EUR 105 million compared to approx. 8,000 jobs created

companies are not "bankable" because of too high risks and too little collateral and often the maturity for typical VC financing is not yet achieved.

It is in the nature of a funding programme that the directive cannot set its framework so specifically that this phase of need could be precisely defined. For example, votes have been registered for a reduction as well as for a prolongation of the eligible company age, both of which find understandable arguments. A company's history can vary greatly depending on the business model, industry and financial resources.

The framework set by INVEST has proven to be plausible and suitable. In principle, it is even feasible to be used in subsequent financing rounds, provided that the age of the company is not too far advanced. This is justified. It is desirable and motivating for the group of business angels, if those financing partners who make the first investment at times of high risk do not have to accept a strong dilution of their stake in the next round but can "go along" with it.

The INVEST programme pursues 2 priority objectives in this order:

1) Motivation and incentive for existing and especially new business angels to make or expand investments, which should strengthen the business angel financing scene in Germany

2) facilitating access to venture capital, in particular from business angels, for young innovative companies

To achieve the first objective, the programme is appropriately widely accessible. Although there is room for improvement in some areas, it endeavours to keep bureaucracy to a minimum and to provide rules and conditions that are easy to understand. This is not always recognised by the target group. On the one hand, however, regulatory legal frameworks on grants and subsidies, which are not open to discussion, require certain formalities, and on the other hand, it is reasonable for both investors and entrepreneurs - when applying for public funds - to familiarise themselves with the objectively controllable regulations as required or at least to use the telephone advice offered. Top marks for BAFA advice from some of the respondents show that this is feasible.

In order to achieve the primary goal of motivating business angels, the funds are to be applied for by the angels and flow directly to them. The second objective is achieved indirectly. In order to mobilise venture capital for the target companies, the programme applies a target-oriented project selection mechanism.

The Angels act as a kind of "door opener" to use the funding. Companies in the target group must first seek, find and convince an investor so that the latter can apply for the INVEST grant. This means that - in contrast to programmes providing direct funding to the companies - there is no need for a critical examination of the companies, their business models and the projects themselves that are to be financed. Instead of the state, the market decides whether a company should be subsidised. This also saves resources in programme administration and is convincing in its logic.

Both the survey and the economic analysis have shown that this mechanism actually works: The companies receiving support are above-average innovators, they invest a large proportion of the funds they receive from INVEST specifically in innovation projects and they show a clear growth in the number of employees, which is above-average even in comparison.

The participants - both on the investor and the company side - are mostly very satisfied with the programme and its handling by BAFA.

In principle, it can be stated that the guideline and the handling procedures do not create any unnecessary, significant hurdles, although minor optimizations are always possible.

In terms of efficiency of enforcement, the cost of programme administration is low. In principle, this is to be welcomed, since the budget is to be spent more on funding. However, in view of the responses from participants, a selective expansion of capacities would be appropriate, particularly in order to shorten the time required for the process of issue.

As far as the distribution of funds is concerned, as always when funds are allocated in an application procedure, the funding body is dependent on the applications being submitted. Neither the BMWi nor the BAFA can ensure on their own initiative that certain target groups are more strongly represented in the project selection than others. The principle of equal treatment does not allow for the promotion of more women, the increased promotion of certain sectors in order to reduce the dominance of ICT projects or to provide more targeted support in weaker regions (weak in terms of economic potential).

The criteria are rightly straightforward and relatively broadly defined, taking advantage of the scope of state aid law. The actual use of the funding programme lies in the responsibility of companies on the one hand and investors on the other.

But what can very well be done, and what we are suggesting, is a more aggressive, targeted marketing for the programme. Above all, the intensive, constant communication with multipliers is promising. Examples of business angel networks and municipal business development agencies show that the number of applications is noticeably higher when the programme is actively known, even advertised. And in marketing, it is then also possible to set priorities, e.g. via women's business networks and via the regional contact points in "application-weak" regions.

The regional distribution of the funds has 2 sides to consider:

- In conurbations in NRW, Hamburg and Bavaria INVEST is not highly required, among other reasons because existing state development programmes are known and can be used well and a strong start-up eco-system supports young start-ups anyway. It therefore tends to be uncritical when less money flows out of the INVEST pot into such regions.
- Outside the conurbations and especially in structurally weaker regions, or where there is no access to incubators, hubs, accelerators and other facilities of the start-up scene anyway, there is all the more need to help young companies locally by activating the latent business angel potential, which can then also provide working places in the regions.

In the present evaluation as well as in the previous one conducted by ZEW in 2016, it was striking that investors in the control group assess their own future venture capital investments (including INVEST funding) much more positively, i.e. more highly, than the investors actually receiving funding. The reduction is significant. This allows, among other things, the hypothesis that the business angels observe that the limiting factor of their investment transactions is not only the perceived risk (or budget) but also the availability of projects that meet their expectations in terms of quality and conditions.

The funding programme cannot influence the quality of the investment cases. What the programme could influence, however, is the likelihood of a matching between a capital-seeking company and a suitable business angel. Here again the topic of marketing comes into play. The INVEST database of eligible companies maintained so far has hardly been noticed by the target group concerned. A concept for this could, for example, include a more attractive, clearer presentation with more information content, as well as the use of multiplier newsletters to reach the group of potential investors. Special matching formats, either in-house or in cooperation with regional networks and multipliers, could contribute to a further stimulation of the business angel market.

Furthermore, some pragmatic improvements in the programme administration are recommended, e.g.:

- Simplification of the annual confirmation procedure for checking the lock-up period (on the company side once for all investors)
- Increased publicity for the established telephone hotline for questions concerning the programme

- ❑ A more transparent procedure for the brief expert opinions or a supplementary presentation option in cases of doubt
- ❑ More digital correspondence and submission options
- ❑ Service-oriented communication, such as deadline reminders

Proposals to amend the programme itself in brief:

- ➢ Simplification of the guideline in principle and conditions, where possible
- ➢ More active support in the search for investors
- ➢ Revision of the strict limitations on the registered business purpose of an investment company
- ➢ Extension of the conversion option for convertible loans to 24 months
- ➢ Pro rata repayment of the grant if the 3-year lock-up period is not reached
- ➢ In the event of budgetary constraints it is most suitable to cancel or reduce the exit grant

Status quo in the achievement of objectives and summarized assessment

Finally, the degree to which the BMWi's internal targets have been achieved is examined:

1. At least 1,000 companies and 1,200 investors per year should benefit from the measure.

   - A total of 5,321 eligibility certificates were issued (representing approximately 79% of applications), to 3,594 different companies. Of these, 1,656 are among the subsidised companies as they found an investor who received a grant approval.

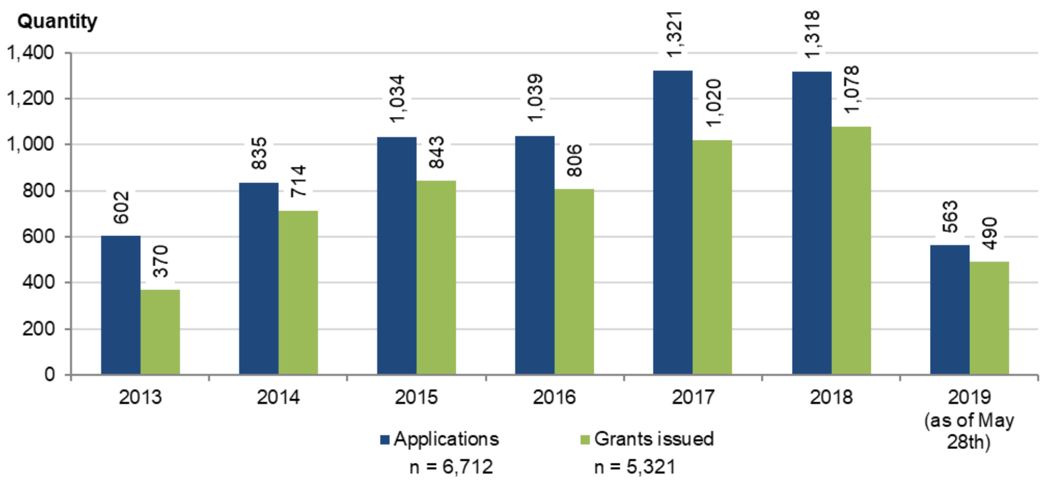


Fig. 7: Applications for / issues of eligibility certificates since the start of the programme

- In 2017 1,020 and in 2018 1,078 eligibility certificates were issued. Up to and including October 2019 a total of 985 applications have already been approved (supplementary information from BAFA).

- In 2017 and 2018, 650 and 612 different first-time applicants respectively were proved to be eligible. In the case of the approved grants, 373 and 347 different companies are affected in the two years respectively. Thus, with regard to the market coverage of the companies, the level of ambition has not yet been reached.

- In 2017, 1,543 applications by investors for the acquisition grant were approved, and in 2018 the figure amounted to 1,831, with 1,301 and 1,497 different investors respectively. The target has thus already been exceeded. In 2019, 1,858 investor applications had already been approved by October.

The following figure shows how many companies or investors benefited for the first time as subsidised programme participants each calendar year.

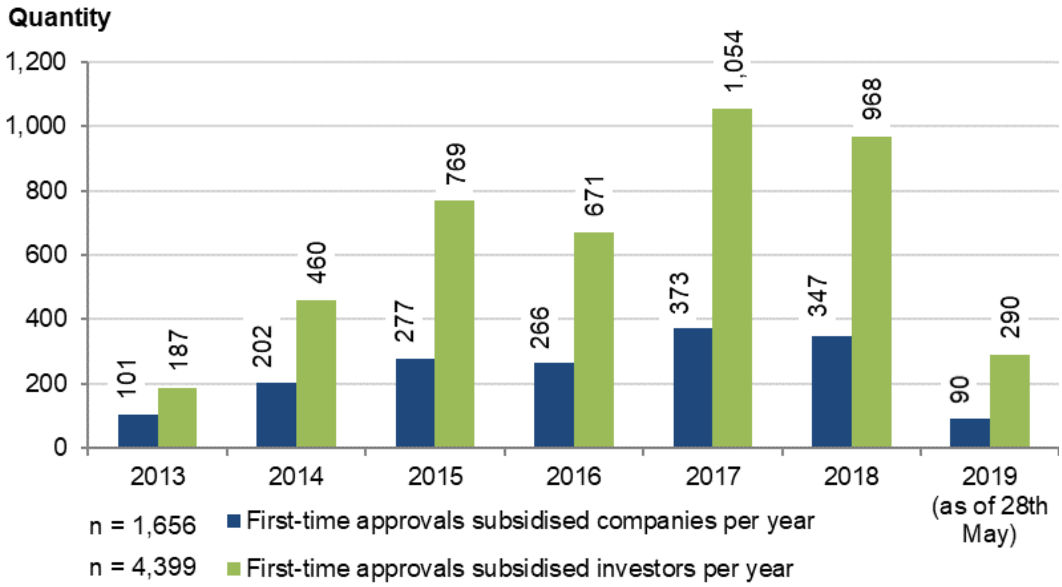


Fig. 8: First-time approvals of subsidised companies / investors since programme start

2. Companies should feel an improvement in their financing situation. At least a quarter of the companies participating in the measure should notice an improvement in their financing situation (more funds, faster access to financing).
   At least one tenth should indicate that without the measure they would not have received private investor financing.

- 25% of the subsidised companies consider INVEST to be the reason for their successful search for investors. Even 54% said that this success was achieved more quickly. 44% of the companies were able to carry out development works faster thanks to the additional capital, 33% said that the additional capital enabled them to enter the market earlier. The fact that further projects were made possible by the available funds was confirmed by 27% and 26% were able to take advantage of a time advantage in development. These figures confirm that even well over a quarter of the companies participating in the measure perceive an improvement in their own financing situation.
- The 25% of the companies receiving support who stated that they were successful in finding investors by participating in INVEST implicitly say that without the support they would at least have had difficulties finding an investor. 52% of the subsidised companies believe that the eligibility certificate was helpful to find an investor. When asked whether the commitment of their investors would have been possible even without the INVEST promotion, 7%

of the promoted companies answered "no". 24% of the companies even say that they could not have been founded without INVEST.

3. At least 100 people per year are to invest for the first time as so-called Virgin Angels.

- 44% of the subsidised investors surveyed stated that their first investment was INVEST subsidised. This results in an extrapolated figure of approx. 1,935 Virgin Angels over the entire programme period (approx. 7 years), with an average of 276 per year. It is logical to assume that the share of Virgin Angels decreases as the programme lifetime increases. However, until now the target has been exceeded by far.

4. Active investors should increase their investment volume by 25% due to INVEST.

- The subsidised investors stated that they had increased their investment volume by an average of 27%.

From circles of the BAND (association of Business Angels) networks it was expressed that the programme has a very important function in the angel scene, because it expresses a political appreciation of the role of business angels for the first time. This appreciation is very important to the Angels themselves, who represent an altogether little institutionalized and very heterogeneous group and thus barely have a strong “voice” besides their networks. It can lead to motivating additional people to act as investors.

The survey shows that positive experiences with the INVEST programme motivate Virgin Angels to take on further (unsubsidised or subsidised) investments. It can be used to gain initial - risk-reduced - experience with the role of a business angel. This is fully in line with the objectives of the programme.

Another function of the programme can be indirect, namely bringing together investors and start-ups.

The INVEST support programme has proven that it is suitable to at least reduce the financing gap in the market for business angel investments in young innovative companies.

We have seen that with increasing awareness, the programme is suitable for motivating additional business angels to make venture capital investments. Among the participants in the survey, the rate of Virgin Angels was very high at 44%.

Through its function of noticeable risk reduction, the programme lowers the entry barriers for new investors. In times of a prolonged period of low interest rates, a 20% grant has an obvious attractiveness for the typical investor.

Among other things, the INVEST programme contributes to raising public awareness to the concept of business angel and makes this form of capital allocation (by its very nature a risky asset class) more popular. This alone is a major achievement of the programme, for which even more PR and marketing should be made.

Minor technical improvements to the guideline and administration were mentioned and can certainly be taken into account in the revision of the scheme, provided that they are also approved by the policy. The continuation of the programme is very important for Germany's start-up and investor scene. It not only helps to increase the probability of successful start-ups in Germany, but also to let these companies grow more strongly - and to keep their management in Germany as a business location, so that profits (welfare gains!) from these projects can be expected for the national economy and have already been proven.