



SOCIAL IMPACT EVALUATION OF THE NEOTEC PROGRAMME

SYNOPTIC
DOCUMENT



Consultoría
e investigación social

Produced by:

The Andaira team: Aldo García, Marina Onetti, Fernando Sabin, Shirley Y. Ospina Vargas

The CDTI Team: Ascensión Barajas Íñigo

Publication included in the 2024 Editorial Programme of the Ministry of Science, Innovation and Universities

General catalogue of official publications:

<https://cpage.mpr.gob.es>

e-NIPO: 154240013



<https://creativecommons.org/licenses/by-nc/4.0/legalcode.es>

Published by: Centro para el Desarrollo Tecnológico y la Innovación (CDTI E.P.E.)

C/ Cid, 4 28001 Madrid

Analysis and Control Department

January 2024



CONTENTS

I. EXECUTIVE SUMMARY	2
1. The Neotec programme	2
2. Impact of the Neotec programme.....	2
3. Conclusions and recommendations	4
4. The evaluation	5
II. EVALUATION METHODOLOGY	8
1. Participatory evaluation and ethical aspects: the Pro-Ethics model.....	8
2. Players involved in the evaluation.....	9
3. Purposes of the evaluation.....	10
4. Participatory impact and theory of change-oriented evaluation	10
5. Evaluation phases.....	12

I. EXECUTIVE SUMMARY

1. The Neotec programme

The Neotec programme was created to support the creation and consolidation of technology-based companies (TBCs) with business strategies focused on the development of technology from their own lines of R&D&I. As well as contributing to entrepreneurship, Neotec is also designed as a tool to promote knowledge transfer from public research bodies to society.

The criteria for evaluating applications prioritise technological excellence (35% of the total score), the viability of the business plan (30%), and the management capacity of the entrepreneurial team (30%). Social impact criteria are present but with a very low weight (5%). The programme targets start-ups up to three years of age and technology-based business plans with a low level of maturity at the time of application. This means that the level of risk is high, from the point of view of both business development and technology.

In the 2018-2020 period, the annual budget of the programme was €25 million. From the last year onwards, the budget increased to reach €40 million in 2023. This evaluation has taken into account the calls for proposals for the years 2018 to 2022, during which 550 projects were approved, representing 25% of the applications submitted.

2. Impact of the Neotec programme

The Neotec programme is having a positive impact on knowledge generation. There was a clear and consistent impact on the funded companies for which the grant was not awarded:

- They have seen a greater increase in R&D&I expenditure and “intangible” fixed assets.
- They have more lines of R&D&I and further-reaching strategies.
- They register more patents.

These aspects are, in turn, linked to the positive impact that Neotec has on the transfer of technology, particularly from the university, whether through the use of technology patented by a research team, the hiring of research personnel by companies or collaboration between these personnel and their original organisation.

Neotec promotes a niche of research-intensive technical and relational skills, which explains the programme’s ability to bring about changes linked to knowledge transfer and expansion.

The clear orientation of the programme to knowledge generation has not been accompanied by a market inclination, at least in the short-medium term: with a time frame of up to four years after the grant was awarded, Neotec has a neutral impact on the financial results of the companies, obtaining no better results than the comparison group (applicant companies that did not receive the grant). Certain evidence explains these results:

- The criteria for evaluation and selection of proposals set out in the calls prioritise solid projects with a disruptive technological basis that do not necessarily have a more favourable market position at the time of application.



- The projects last for one or two years, and are at an early stage of development when the grant is awarded. The complexity of technological developments means that the deadline for market entry is longer.
- Although the terms of the programme's call are aimed at promoting teams with management skills, not supported companies have more experience in areas linked to business development (investment and management).
- Achieving a Neotec project, while generating recognition *per se*, given the scenario of highly-demanding competition, does not reinforce the corporate brand image. There are also no actions aimed at giving visibility to success stories.

Neotec's shortfall in market performance over a short-to-medium time frame is partly due to the fact that there is no clear prioritisation of this criterion in the evaluation of proposals, and also because post-project support lines in this area are not covered by the programme.

Despite this, Neotec-funded companies have a higher survival rate than non-funded companies. Participation in the programme also increases the possibilities for developing the technology project, although the calendar of payments of the grant in many cases does not cover the liquidity needs of companies, which have to make use of other funding options. The obtaining of additional funding from European programmes such as Horizon 2020 receives a clear boost through Neotec. There is also a positive impact on the entry of new shareholders and the growth of corporate capital.

Likewise, Neotec companies have been found to have a greater impact on job creation and job consolidation, with a higher proportion of permanent contracts than non-beneficiary companies.

Better access to funding (either from the programme itself or from external sources), together with the choice of solid projects, explains the greater strength of the funded companies in terms of survival.

Some elements that facilitate access to Neotec have been identified: the proper functioning of the administrative processes of the CDTI; the clarity of the call; the existence of a network of advisory or consulting companies specialised in Neotec; the ability of potential beneficiaries to identify the programme (despite no in-depth knowledge of it); and the proven usefulness of the support of a Business and Innovation Centre (CEEI) or incubator. All these elements encourage the programme to reach practically all sectors, although there is less presence in the area of food, agriculture and fisheries.

In contrast, the budgetary constraints of the programme determine a framework of high competition where proposals evaluated with scores above the established minimum do not receive funding. In other words, the programme supports the creation of technology-based companies, but has a limited scope.

The terms of the call have also found aspects that narrow the framework for the possibility of some potentially good projects: they have few options to be financed by companies with a very short history, little solidity of business plans or smaller budgets, but at the same time the regulations prevent companies with more than three years of life from accessing the grant. All this in a scenario where the calls allow for a variety of proposals in sectoral and technological terms without prioritising any type of business society (for example, companies in the Social Economy are not promoted in the terms of the call).

Moreover, the programme has limited or partial results in terms of social and environmental impact. In particular:

- Neotec does not have a positive impact on technology development processes with a **gender perspective** or on the internal business management activities associated with the work team. In this regard, there is no corrective effect of the programme on the presence of women in the different levels of the organisation, including the positions that hold share capital.

- Neotec has no differential impact on the development of technology aimed at solving **social problems**, although a high percentage of projects (60%) are related to health and quality of life. Moreover, it does not help minimise the **technology gap** of groups at risk, and there is even a negative effect on access to technology by some groups, such as people with low income levels or those living in rural areas.
- The effects on **job creation** for social groups with greater difficulties in accessing the labour market are partial, highlighting a positive effect on young people under the age of 25.
- The programme has no different impact on the development of **sustainable technologies**, and is even negative in the area of adaptation to climate change and the sustainable use and protection of water resources. This means that the programme alone fails to boost these technologies.

These weak or partial results in terms of socio-environmental impact can be explained by a lack of market motivation or stimuli from companies, as well as a lack of programmatic emphasis on these aspects: the criteria of social impact in the Neotec calls have a very little impact in the awarding of the grant (5 points out of 100 as of the 2019 call) and, given their multi-dimensional nature, present difficulties in scoring the applications.

3. Conclusions and recommendations

NEOTEC has a unique place in national policy to support technological entrepreneurship. It is clearly distinguished by its support for projects that are very advanced in terms of technology, with low levels of maturity at the time of application.

It is a financial tool that has proven to be extremely valuable in knowledge transfer and generation and in the use of that knowledge through companies that, despite needing to strengthen their market position, show good signs of achieving this (survival, access to other sources of funding, and stability in job creation).

The overall positive effect of the programme on the companies funded and on promoting the economic activity of specialised suppliers in the territory is accompanied by a limited effect on the comparative improvement of the short to medium-term market position.

Furthermore, NEOTEC does not operate nor has it been designed as an instrument to address socio-environmental needs identified as priorities in the policy framework of the programme (and which have been taken into account in this evaluation), as there is no differential effect on these aspects.

The characteristics of the instrument in the period of reference are consistent with the impact it generates and with the targeted beneficiaries, although the evaluation provides evidence on areas in which there is a potential to generate change based on this programme and which have so far not been explored. To this end, it would be necessary to reflect on the capacity of Neotec to promote a technological venture that results in specific improvements for society and for the sustainability of economic activity.

Based on the results of this evaluation, the following recommendations are made:

1. To continue to promote Neotec as a niche programme of excellence through **increased budget** for the programme and other **supporting actions**. This would result in:
 - a. **An increase in beneficiary companies**, which are currently not included, and even exceeding the minimum score threshold to access the grant. This increase in budget should be accompanied by a strengthening of CDTI's **human resources**, with a particular focus on continuing training in cutting-edge technologies.



- b. To include a **budget reserve** for technological areas, taking into account the different maturation speeds of technology and the consequent difficulties in consolidating business.
 - c. To examine the incorporation of **different financial conditions**, such as the possibility of granting a larger advance payment, modulated according to the sector of the companies.
 - d. To identify with some type of **badge the projects that have been positively evaluated** but have not received the grant. This would highlight the work carried out by CDTI personnel, beyond the awarding of grants, and would facilitate access to other sources of funding.
 - e. To encourage the participation of Neotec companies in **European programmes**, such as Horizon Europe, by providing information and support in the submission of proposals and the search for partners.
2. To **strengthen the market position** of companies that gain access to the grants. The following is therefore proposed:
- a. To take advantage of opportunities to support the launch into the market of the recipient companies through **synergies with other national or European grants** that may cover these phases, such as the Accelerator programme of the European Innovation Council (EIC Accelerator), in which the Neotec projects are already being promoted.
 - b. To concentrate efforts on raising the **profile of success stories** that help strengthen the brand image of companies that have benefited from the programme. This could be achieved by generating contact environments or networks among the various players involved in the programme (companies, entrepreneurship support centres, research bodies, specialist consultants, university-business foundations, etc.).
3. To reinforce aspects related to **social and environmental impact in which a potential effect of Neotec** has been identified, through:
- a. Internal reflection to align the goals of the programme with those defined in the framework of the Transformation and Resilience Recovery Plan, especially in terms of sustainability and social cohesion. To this end, Neotec could be more ambitious, using as a reference the DNSH (Do No Significant Harm) principle, for example, which defines priority environmental principles for climate change mitigation.
 - b. To review the weight given to those aspects related to social impact defined in the call, as well as its clarification to ensure a more objective evaluation by type of impact.
 - c. To develop awareness activities to promote inclusive dynamics within technology-based companies, particularly enhancing Neotec's role in reducing the gender gap. Along these lines, the Neotec call for female entrepreneurs in 2022 and the new rules for the Neotec 2023 call, with a budget reserve for projects led by women, are a step in the right direction.

4. The evaluation

The time frame for this evaluation is 2018-2022. The information comes is a representative sample of companies with a Neotec project approved or rejected during this period. A participatory approach has been applied to its treatment, and quantitative and qualitative methodologies have been used.

In the context of the impact evaluations promoted by the CDTI, this evaluation has included a novel approach when conducting an analysis of the social and environmental impact of the Neotec programme.

This approach has enabled the programme to expand its evaluation horizons and dimensions, providing relevant information on Neotec's impact beyond its specific objectives and promoting new impact evaluation

techniques and the participation of external stakeholders in this process. The ethical aspects of this participation have been managed in accordance with the Pro-Ethics reference framework, a project funded by the European Union's Horizon 2020 programme.

Graph 1:
RESULTS OF THE SOCIAL IMPACT EVALUATION OF NEOTEC

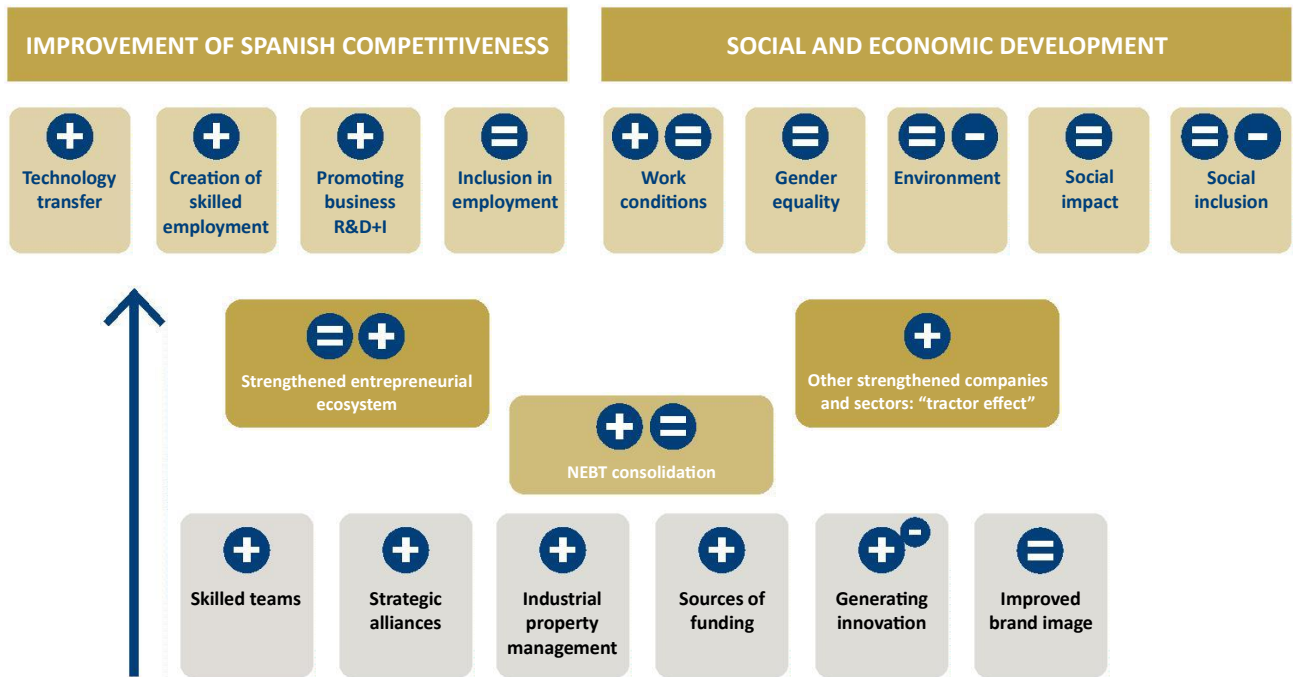


Table 1:
APPLICATIONS AND PROJECTS APPROVED BY NEOTEC. 2018-2022

Call	Applications submitted	Approved	Grant (million €)
2018	387	101	23.8
2019	300	104	25.3
2020	462	103	25.2
2021	575	125	36.8
2022	475	117	35.4
Overall total	2199	550	146.6



CENTRE FOR TECHNOLOGICAL DEVELOPMENT AND INNOVATION – CDTI



The CDTI-E.P.E. is a Public Business Entity under the authority of the Ministry of Science and Innovation which promotes innovation and technological development in Spanish companies. It is the entity that channels applications for grants and support to R&D+i projects from Spanish companies at state and international levels. The aim of the CDTI is, therefore, to help improve the technological level of Spanish companies by implementing the following activities:

Technical and financial evaluation and the awarding of public aid for innovation through grants or partially reimbursable aid to R&D projects developed by companies.

- Management and promotion of Spanish participation in international technological cooperation programmes.
- Promotion of international transfer of business technology and support services for technological innovation.
- Support for the creation and consolidation of technology-based companies.

Source: Centre for Industrial Technological Development /What is the CDTI/Functions

The full evaluation report in Spanish is available at

<https://www.cdti.es/evaluacion-de-impacto-y-monitorizacion-de-resultados>

II. EVALUATION METHODOLOGY

1. Participatory evaluation and ethical aspects: the Pro-Ethics model

The participatory processes used in the evaluation of Neotec have taken into account the results of the European Pro-Ethics project, funded through the Horizon 2020 programme. Pro-Ethics facilitates the implementation and management of ethical aspects in participatory processes carried out by public innovation agencies. The CDTI has participated in this project with a participatory evaluation pilot focused on the social impact of Neotec.

As a result of the work carried out by the 15 members of the consortium, two documents have been published: the Pro-Ethics Ethical Framework and the Practical Guide and Implementation Criteria. Both documents provide guidance to ensure the correct participation of the different players, highlighting values such as fairness, transparency, equality, and privacy. In its model, Pro-Ethics includes a broad spectrum of participants and a taxonomy of its own that covers all possibilities for participatory actions within innovation agencies¹.

Considering that the connection between participation and ethics is a complex issue, the Pro-Ethics model provides a list of matters that should be addressed to define participatory processes according to an ethical approach and ensure the added value of all actions. Each of these questions needs to be answered with the different stages of the process in mind (before, during and after participation).

- A. How should participatory processes be structured?
- B. What are the activities/objectives of the participatory process?
- C. What are the target participants?
- D. What are the ethical risks and issues?
- E. How can an equal and meaningful dialogue be fostered?
- F. How should participatory processes be monitored and reflected upon?

The Pro-Ethics model has been tested through different experiences or pilots carried out by the agencies participating in the project. The challenges identified relate mainly to the difficulties in attracting the interest of participants; the management of commitments and expectations of both parties; the organisation of dialogue; equal participation and the inclusion of vulnerable groups.

In the context of the Neotec evaluation, ethical aspects of particular relevance have arisen, such as the need to anticipate potential conflicts of interest of the participants; the clarity and transparency of the players' roles in the process; or the proper use of informed consent procedures to clarify the context of the participation and use of information. The Pro-Ethics model incorporates tools to address these challenges in an operational manner.

¹ For more information see <https://pro-ethics.eu/>

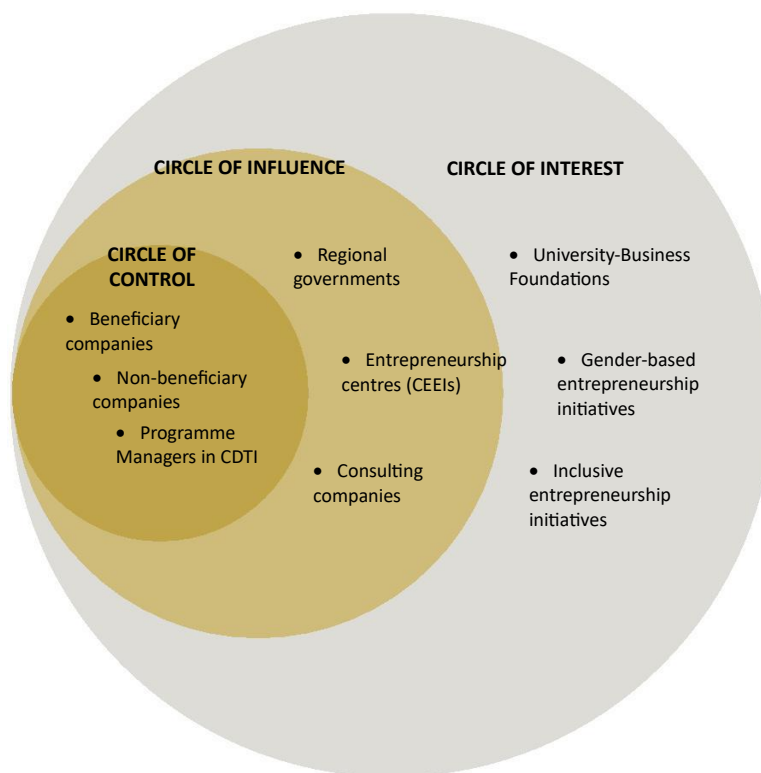


2. Stakeholders involved in the evaluation

One of the reasons why it is necessary to involve several players in the entire process of the Neotec evaluation is because there is no theoretical framework of reference to define the potential social impacts of the programme and its scope. Having multiple visions will allow for the theory of the programme to be defined from this point of view and to consistently complete the logical model.

Using the Guide developed by Pro-Ethics as a reference, the relevant stakeholders were identified considering three criteria: prior knowledge of the programme, proximity to the scope of Neotec, and interest in the evaluation. Although there are varying degrees of knowledge, proximity and interest among the different actors involved, a minimum must be set so that the contribution of each one can be integrated into the whole. In this sense, the stakeholders are located in three areas: the programme control area, the area of influence, and the area of interest (see Chart 2).

Graph 2:
AREAS FOR THE EVALUATION OF THE SOCIAL IMPACT



In the circle of control are those stakeholders for which the programme is fundamental to decision-making and, therefore, that have a very high degree of knowledge, proximity and interest in the evaluation. In this case, there would be beneficiary and non-beneficiary companies and programme managers within the CDTI.

In the circle of influence are stakeholders on which the programme has an influence but who make their own decisions. These would have a high degree of knowledge and proximity and a high-average interest in the evaluation. These would include entrepreneurship support centres or incubators, consulting companies providing support to applicants, and regional governments with programmes similar to Neotec.

Finally, the circle of interest includes stakeholders whose activity is not related to Neotec but is related to the promotion of entrepreneurship, not necessarily in the field of technology. Their level of knowledge of the programme and their proximity to the context of Neotec is medium or medium-low, and their interest in the evaluation is medium. The university-business foundations and two entrepreneurship initiatives have been identified here, one with a gender focus (Innovatia 8.3 programme) and another with a social inclusion approach for people with disabilities (programmes supported by the ONCE Foundation). These players are essential for defining the limits of the social scope of the programme, as they are in the area that could be considered the boundary of impact.

3. Purposes of the evaluation

The evaluation aims to respond to the information needs and requirements of the different stakeholders involved in the programme. It was conducted by a mixed team (hereinafter known as the evaluation team) made up of internal personnel of the CDTI and of the consulting company Andaira.

The main purposes of the evaluation were:

- To ascertain the social impact of the Neotec programme, which is the subject of this evaluation.
- To generate knowledge of the programme to support strategic decision-making.
- To learn significant lessons about mechanisms of change to improve implementation of the programme.
- To contribute towards programme accountability.
- To publicise and disseminate the results to the stakeholders involved and/or related to the programme and to society in general.

4. Participatory and theory of change-oriented evaluation

In order to be able to adapt to the defined purposes, the “theory of change-oriented method of evaluation” was chosen, which focuses on understanding how the programme works in order to find the mechanisms that explain the achieving of the results or the factors, absences or elements that prevent it.

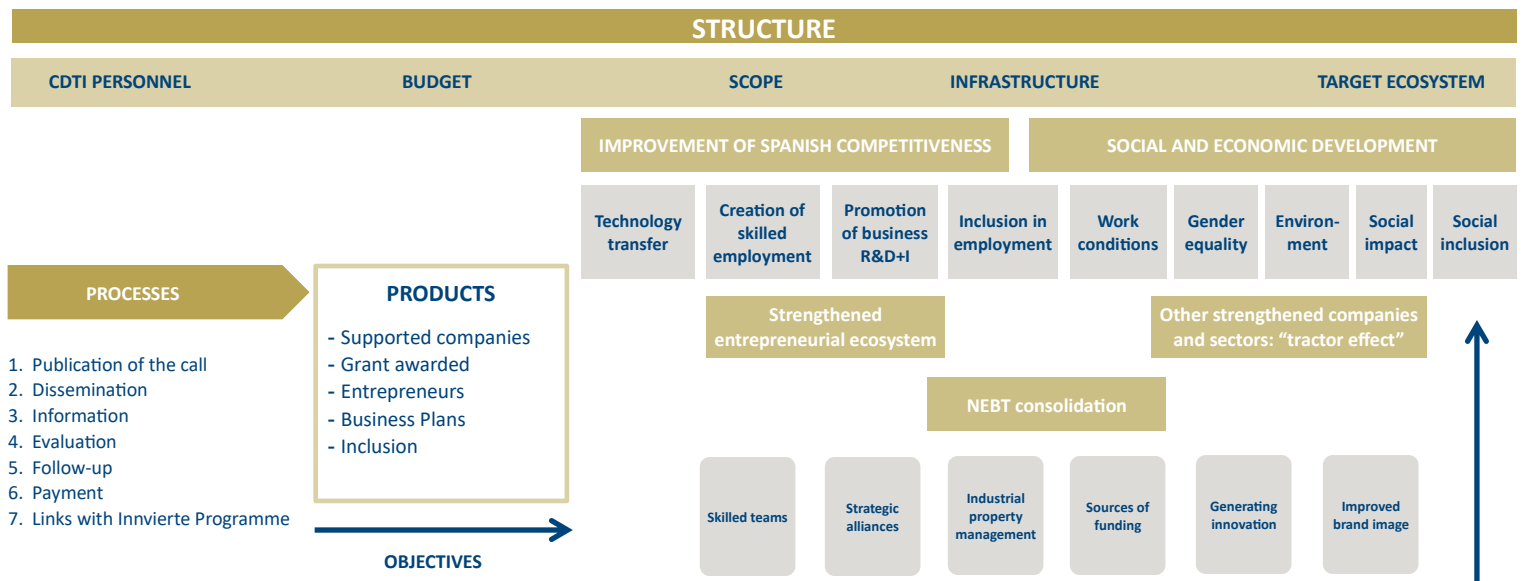
The entire process has been developed by incorporating the perspective of the stakeholders identified in the exploratory phase prior to the evaluation. Their point of view was a very important element in focusing the design of the evaluation, as well as in interpreting the results obtained.

Moreover, the participatory approach was essential to address the social impact of the programme. Although the criteria for awarding Neotec grants related with social impact are present in all calls, their weight in the overall scoring is very low (5 points out of 100). The extent to which the programme is bringing about change in society is therefore questionable.

Precisely the first question was to define the social effects (expected and not expected) of Neotec and the questions related to this impact that the evaluation would have to answer. The logical model was constructed through participatory dynamics.



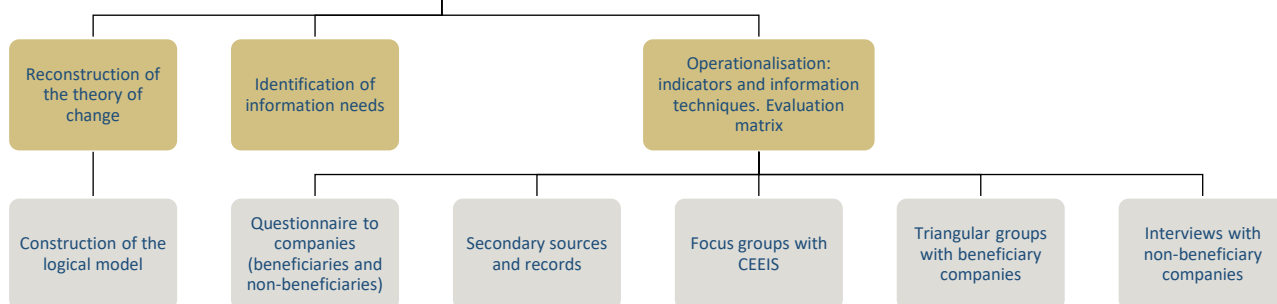
Graph 3:
SYSTEMATIC LOGICAL MODEL OF THE NEOTEC PROGRAMME



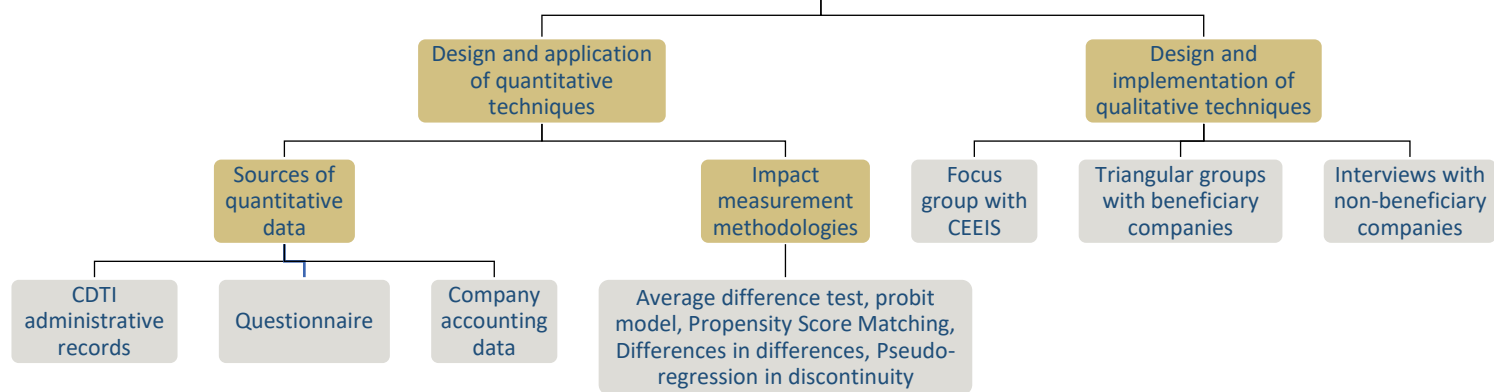
This logical model of intervention specifies the different expected results in the recipient companies, the products or outputs, the main process for awarding and monitoring the grant, and the main structural elements required (resources, funding, theoretical model, personnel, etc.).

5. Evaluation phases

Phase 1. PARTICIPATORY DESIGN



Phase 2. PARTICIPATORY DEVELOPMENT





This evaluation has received funding from the European Union Horizon 2020 programme under the PRO-Ethics project, grant agreement No. 872441

proEthics

