

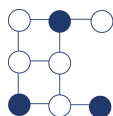
An Assessment of the Impact of The Young Innovative Companies (NIY) Program

Provided under contract to Tekes

By

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The Evidence Network has conducted an in-depth examination of the impact of the NIY Program on its participant companies. Several conclusions stand out:

1. **On the impact of the NIY Program on companies' performance:** The NIY Program is achieving significant impact on companies' acquisition of new international customers, increases in employment, and time to market. Companies that used the non-financial NIY support initiatives to a greater degree attribute the greatest impact on company performance to the NIY Program.
2. **On the impact of the NIY Program on companies' resources and capabilities:** The NIY Program is achieving significant impact on strengthening the resources and capabilities of companies, in particular, improvements to their leadership or governance, business planning, selling into new markets, and strategic knowledge capabilities. The average direct impacts of the NIY Program on companies' resources and capabilities increase with the degree of use of non-financial support provided by the NIY Program.
3. **On the predictors of impact on companies' performance:** The total NIY Program funding provided to companies is the best predictor of impact on company performance related to growth. The positive impacts of the NIY Program on companies' resources and capabilities, in particular, improvements to companies' strategic business knowledge and linkages, and improvements to their international marketing capabilities are also significant predictors of impact on improved company performance related to growth.

The NIY Program's direct impact on the financing capabilities of companies is the best predictor of its indirect impact on companies' ability to raise additional capital from private and public sources.

4. **Economic Impact of the NIY Program:** To date, for the 108 companies that participated in the impact assessment survey, the NIY Program has contributed a total of approximately €99.1 million to companies' revenues, and 1,172 jobs, accounting for more than half of the total present revenues and employment of the companies. Ninety-three percent of companies report a positive impact attributed to the NIY Program on revenue growth or employment increases.

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Executive Summary

This document provides an assessment of the performance of the NIY Program conducted by The Evidence Network (TEN), an independent third party company that specializes in assessment of the impact of innovation intermediaries.

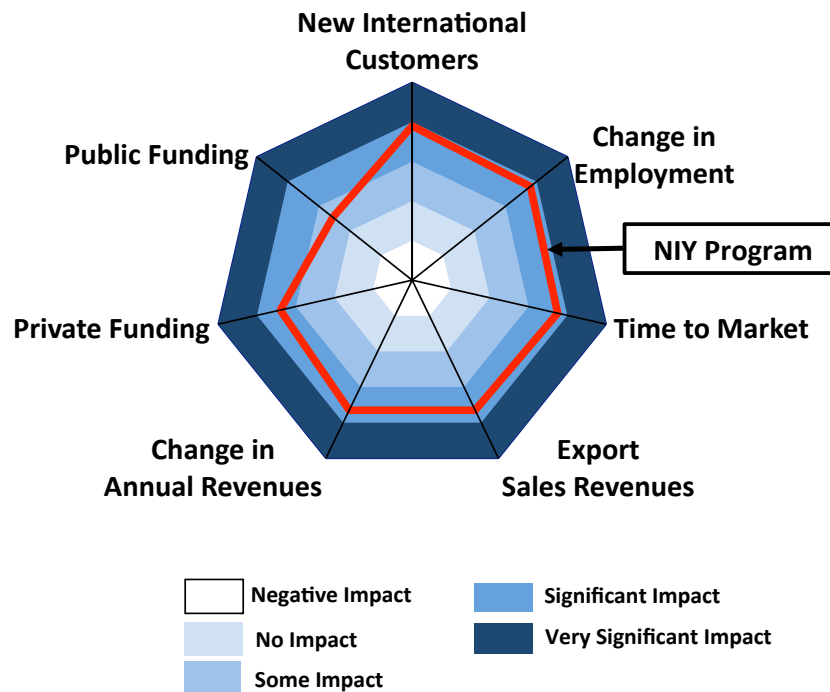
TEN measures the direct impact that innovation intermediaries have on companies' resources and capabilities, and the indirect impact that they have on companies' performance. By measuring impact on companies' performance, TEN provides evidence of the impact of intermediary services in terms of new products and services, employment, revenues, etc. By measuring direct impact, TEN provides intermediary managers, boards of directors, and funding agents with knowledge of the impact of intermediary services on the resources and capabilities of their client or member companies.

During May 2013, 108 clients that had engaged with the NIY Program responded to a customized web-based survey. Our analysis of surveyed companies is summarized below. Immediately following the executive summary is the NIY Program Summary Evaluation that addresses specific Tekes questions related to the goals of the NIY Program.

1. *NIY Program Participant Companies:*

- The participants of the NIY Program range from ICT and digital media companies, to natural resource based companies
- The intake of new participants into the NIY Program increased year over year between 2008-2011; participation in 2012 was 35% higher than in 2008
- 35% of the companies had completed the NIY Program at the time of the survey
- 67% of the companies received funding but no other non-financial support from the NIY Program
- 61% of the companies were established between 2005-2008
- Although the NIY Program engages companies from a broad range of sectors, companies were most frequently in the ICT sector, representing 49% of participants
- 43% of the respondents indicated that their company had fewer than 10 employees; the total present employment of the responding companies is 2,256 persons. 11% of the respondents indicated that their company had 50 or more employees
- 57% of companies employ fewer than 10 employees with a university degree
- 41% of the respondents reported their annual revenues to be less than €500K or that their company was pre-revenue. The total present revenues of the responding companies are €171.5 million.
- 63% of companies allocated more than 30% of their total expenditure to research or development efforts

2. *Indirect Impact on Company Performance:*



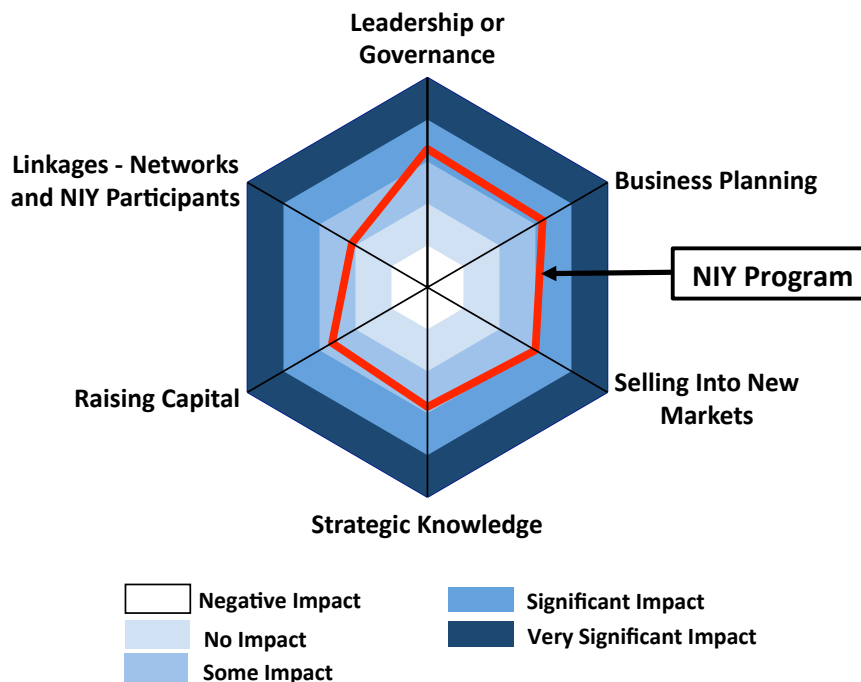
Average Indirect Impact of the NIY Program on Company Performance (all measures)

We found that among all indirect impact performance measures, the NIY Program has greatest impact on acquisition of new international customers, change in employment and time to market. Lesser impact was found on companies' receipt of private and public financing. Companies that used the non-financial NIY support initiatives (Mentoring by Tekes advisors, Contacts with public or private investors, Investor presentation assistance and Contacts with business advisors, accelerators, or board members) as a consequence of their engagement in the NIY Program, attributed the greatest impact on company performance to the NIY Program.

Overall, the tendency to attribute impact to the NIY Program increases as company performance increases, as evidenced by higher impact attribution from companies that acquired more international customers as a result of participating in the NIY Program.

- 96% of the companies that acquired new international customers attributed positive impact to the NIY Program on their ability to attract new international customers.
- 96% of the companies that experienced an increase in employment since first engagement in the NIY Program attributed positive impact to the NIY Program on their ability to create or preserve jobs.
- 94% of the companies that had an elapsed time of less than two years between product or service conceptualization and market launch attributed positive impact to the NIY Program on their ability to introduce new products or services to market.

3. *Direct Impact on Companies' Resources and Capabilities:*



Average Direct Impact of the NIY Program on Companies' Resources and Capabilities
(all measures)

We found that among all direct impact measures on companies' resources and capabilities, the NIY Program has the greatest impact on improvements to companies' leadership or governance, business planning, selling into new markets, and strategic knowledge. Lesser impact was found on companies' resources and capabilities related to raising capital and linkages to networks and other NIY participants. Larger companies, those belonging to the ICT, digital media, entertainment and lifestyle sectors, or companies that used the non-financial NIY support initiatives (Mentoring by Tekes advisors, Contacts with public or private investors, Assistance with Investor presentations, and Contacts with business advisors, accelerators, or board members) as a consequence of their engagement in the NIY Program, attributed the greatest direct impact on their resources and capabilities to the NIY Program.

The NIY Program's funding and support initiatives lead to direct impact on companies' resources and capabilities, which in turn leads to the indirect impacts on companies' performance described above. Respondents attributed improvements to the following resources or capabilities to the NIY Program to be 'some', 'significant' or 'very significant':

- Business planning (90% of respondents)
- Leadership or governance (88%)
- Strategic knowledge (84%)
- Selling into new markets (80%)
- Raising capital (70%)
- Linkages – networks and NIY participants (62%)

The average direct impact on the resources and capabilities of companies was greater for respondents that received both funding and non-financial support than those that only received funding (significant at the 99% confidence level).

Further, in support of the NIY Program's mandate, it was determined through data analysis of the Tekes Growth Evaluation Project (GEP) that since first engagement in the NIY Program:

- 100% of respondents indicated at least moderate emphasis was placed on addressing growth objectives
- 96% of respondents indicated that their company placed at least moderate emphasis on altering the international strategy of their business
- 65% of respondents indicated that their company made moderate to radical changes to their business model
- 60% of respondents indicated that their company placed at least moderate emphasis on altering the product or customer strategy of their business
- 52% of respondents indicated that their company made moderate to radical changes to their product or service concept.

4. ***NIY Program Support Initiatives:***

Recognizing that not all companies would avail themselves of all support initiatives offered by the NIY Program, respondents reported 'moderate' or 'high' degree of use of the following NIY Program support initiatives:

- Mentoring by Tekes advisor (47% of respondents)
- Contact with either public or private investors (37%)
- Participation in other Tekes programs (36%)
- Assistance with investor presentations (33%)
- Contact with business advisors, accelerators, or Board members (33%)

We further analyzed funding support as a subset of support initiatives. As such, we found that NIY funds were used to a higher degree for strengthening international sales networks and marketing, compared to use of funds for all other business functions (significant at the 99% confidence level).

5. ***Relationship between NIY Program Services, Direct Impact, and Indirect Impact on Company Performance:***

We find that the money provided by the NIY Program is the best predictor of improved company performance. Direct impact on companies' resources and capabilities is also a significant predictor. In particular, improvements to companies' strategic business knowledge and linkages, and improvements to international marketing capabilities are significant predictors of company growth.

Further, we find that the NIY Program's direct impact on companies' resources and capabilities is the best predictor of its indirect impact on companies' ability to raise additional capital from private and public sources. In particular, it is improvements to financing capabilities of companies that is the best predictor of companies' ability to raise additional capital from private and public sources.

Overall, it is the combination of direct impacts on companies' resources and capabilities and the money the NIY Program provides that results in impact on the performance of companies that participate in the NIY Program. These findings are consistent with the NIY Program's mandate to accelerate the growth and internationalization of the most promising young companies in Finland by providing financial and non-financial support to companies.

6. ***Economic Impact:***

Our findings show that to date, for the 108 companies that participated in the impact assessment survey, the NIY Program has contributed a total of approximately €99.1 million to companies' revenues, and 1,172 jobs. Further, 93% of companies attribute positive impact to the NIY Program on revenues or employment.

The impacts being achieved by the NIY Program are encouraging and important. While companies were selected to participate in the NIY Program based upon their potential to grow internationally, they are diverse, as represented by their age, number of employees, annual revenues, and the industrial sectors in which they operate. With services support across this broad group of companies, achieving impact on both resources and capabilities of companies, as well as on overall company performance, is commendable.

NIY Program – Summary Evaluation

This section provides a summary evaluation of the NIY program that is based upon evidence gathered from the web-based survey of companies participating in the NIY Program. The evaluation is also supported by interviews with a cross-section of participating companies, and analysis of data from the Tekes Growth Evaluation Project (GEP). Three broad evaluation goals were identified to guide the impact assessment. Our findings with respect to each evaluation goal follow.

Evaluation Goal 1:

What are the results and outcomes of the NIY Program from the perspectives of firms themselves and innovation policy?

Finnish Innovation Policy

Finland follows innovation policies that are developed under the auspices of The Ministry of Employment and the Economy, with its innovation system coordinated by the Research and Innovation Council (RIC).

In addition to technological innovations, Finland follows policies to achieve economic growth through non-technological means, which include innovations in services, business models, work-life balance, and in the public services.¹ The Government's innovation policy, prepared and approved in October 2008, is derived from its innovation strategy. Two goals of Finland's innovation strategy are to improve productivity in enterprises and communities, and to pioneer innovation on a global scale in selected industries (Aho, E., *et al.*, 2008). To achieve these goals, the innovation strategy calls for making choices concerning innovation activity in the global economy; innovation activity related to demand and user orientation; innovations created by individuals and communities; and through taking a systematic approach toward fostering innovation (Aho, E., *et al.*, 2008).

Finland's innovation system is presently undergoing change as the government re-focuses its strategy. Changes in the future will include simplifying a complex innovation system, reviewing organizations and programs, and decreasing the number of R&D related organisations and university programs. In the past, the government provided direct funding to support business R&D and innovation.² As the innovation system changes, the government will provide additional support through indirect means. This change can be seen in Tekes shifting its emphasis from funding industrial and technological R&D projects towards service firms, non-technical innovation, and local SMEs.³

¹ Ministry of Employment and the Economy. Innovation policy renewal. Retrieved June 4, 2013, from http://www.tem.fi/en/innovations/innovation_policy/innovation_policy_renewal

² Review of Federal Support to Research and Development (2011, February 3). Federal Programs and Initiatives. Retrieved June 4, 2013, from <http://rd-review.ca/eic/site/033.nsf/eng/00048.html>

³ Review of Federal Support to Research and Development (2011, February 3). Federal Programs and Initiatives. Retrieved June 4, 2013, from <http://rd-review.ca/eic/site/033.nsf/eng/00048.html>

Alignment of the NIY Program with Innovation Policy

It is within this context that Tekes, through the NIY Program, offers support for young innovative companies to achieve rapid international growth. In alignment with Finland's innovation policies, the NIY Program focuses on SME's, business innovation, and growth of local companies in the international marketplace.

Therefore, from a policy perspective, the NIY Program directly addresses productivity improvements in enterprises and communities, and is part of Tekes' revision of its innovation strategy. The program provides funding to local SMEs to improve their resources and capabilities in an effort to increase employment, internationalization, and overall company growth. The program enables active Finnish participation and considerable influence in global knowledge networks. The NIY Program also provides incentives for its citizens with advanced technological knowledge to remain in Finland and pursue strategic international growth, for example, through the funding provided to companies that participate in the NIY Program, which provides opportunities for entrepreneurs to innovate. The program itself is a systematic approach to innovation, as it endorses broad-based innovation activities and promotes renewal of the innovation system.

The NIY Program is also an entity for growth entrepreneurship, one of ten key measures outlined in Finland's innovation strategy (Aho, E., *et al.*, 2008). Tekes funding and support enables the NIY Program to operate with entrepreneur and investor orientation. The NIY Program provides the initial financing for SMEs and entrepreneurs, which is critical for early stage growth and internationalization. It is this public-private cooperation of the program that is intended to motivate institutional venture capital to help leverage the funds companies receive through participation in the program.

NIY Program Impact on Firms – Relationship to Policy

The NIY Program results in the growth of innovative Finnish companies in terms of annual revenues, export revenues, number of international customers, and number of employees.

The table below provides the results of several measures used in this report that illustrate the growth performance of innovative companies, and the impact on growth attributable to the NIY Program. This table shows that the NIY Program is achieving results in alignment with Finnish innovation policy.

Performance Measure	Performance since Engagement with NIY Program	Percentage of Companies Attributing Positive Impact to the NIY Program
Annual Revenues	61% of companies increased revenues by 100% or more	90
Export Revenues	44% of companies have export revenues greater than €500,000	97
Increase in International Customers	52% acquired 10 or more international customers; 81% acquired 3 or more	96
Increase in Employment	34% increased by more than 100%; 77% increased by 25% or more	93

In addition to determining the impact of the NIY Program on companies, we investigated how the impact was achieved. We compared among predictors and found that the total NIY Program funding provided to companies was the best predictor of impact on company performance related to growth. Positive impacts of the NIY Program on improvements to companies' strategic business knowledge and linkages, and improvements to their international marketing capabilities are also significant on the performance of participating companies, and through them, on the Finnish economy.

To date, for all 108 companies that participated in the impact assessment survey, the NIY Program has contributed a total of approximately €99.1 million to companies' revenues and 1,172 jobs. This impact attributed to the NIY Program accounts for more than half of the total present revenues and employment of the companies. This is further evidence that the NIY Program interventions are making a significant impact on both company performance, and on the Finnish economy.

Evaluation Goal 2:

What are the experiences of participants of the NIY Program? What was their value added? How has cooperation with networks, other participants, and Tekes succeeded? How has Tekes funding helped firms to find private funding networks?

Experiences of Participants

In addition to the web-based survey conducted by TEN, a cross-section of the NIY Program participants were asked three open-ended questions regarding their participation in the program through telephone interviews. The responses to these questions were overwhelmingly positive and lend credence to the important role of the NIY Program.

Value-added

Participants indicate that in addition to the provision of funding, the NIY Program offers critical support to their companies. This support comes in a variety of forms including sharing innovative business concepts, offering guidance during periods of uncertainty, and providing opportunities for growth. Additionally, it was determined that companies that used the non-financial NIY support initiatives (Mentoring by Tekes advisors, Contacts with public or private investors, Assistance with investor presentations, and Contacts with business advisors, accelerators, or board members) attributed greater direct impact to the NIY Program than companies that only received funding. It is also important to note that a number of respondents indicated that the support provided by the NIY program was responsible for their future economic sustainability.

The majority of respondents provided positive feedback regarding the structure of the NIY Program. Many respondents indicated that Tekes, and the NIY Program, employ a unique and rigorous structure, and these respondents indicated that their business was improved and their thinking clarified as a result of having followed the process of the program. This is a value added component of the NIY Program, it lends structure, organization, and critical thinking capabilities to its participants. Strategy is not only about what a company should do, but also what it should not do – the NIY Program promotes rational decision-making among start-ups and among companies seeking international growth.

In keeping with the mandate of the NIY Program, to support fast international growth for young innovative companies, many respondents indicated that the program had an effect on their ability to expand into new markets, especially those located abroad. Respondents mentioned that the program enabled their companies to achieve international growth and network expansion at a much faster rate than would have been possible without the support of the Program. Comparing direct impacts on companies' resources and capabilities, we found that the NIY Program has the greatest impact on improvements to companies' leadership or governance, business planning, selling into new markets, and strategic knowledge.

The table below shows the percentage of respondents that attributed positive impact to the NIY Program on improvements to their resources or capabilities.

Direct Impact Measure	Examples	Percentage of Companies Attributing Positive Impact to the NIY Program
Business planning	<i>Assistance with implementation of growth strategies or expansion plans, or development of financial projections, marketing or pricing strategies, operational plans, or cost reduction plans.</i>	90
Leadership or governance	<i>Ability to hire senior employees or gain access to key individuals strategic to your company's success, or to engage corporate directors or other officials essential to good corporate governance.</i>	88
Strategic knowledge	<i>Information or advice related to the acceleration or adoption of corporate growth strategies such as those related to expansion of the scale of operations, diversification into new product lines, or expansion of industrial or geographical markets.</i>	84
Selling into new markets	<i>Information or advice on high-growth market segments, key customers, distributors, sales channels, or other important marketing-related knowledge.</i>	80
Raising capital	<i>Linkages to investor networks, industry associations, NIY participants, or others through meetings, events or other forums fostered by initiatives of the NIY Program.</i>	70

Cooperation with Networks, other participants, and Tekes

Sixty-two percent of respondents indicated that improved linkages with networks and other NIY participants had a positive impact on the resources and capabilities of their companies. While this is a clear indication that cooperation with networks, other NIY participants, and Tekes is having an impact on companies, a smaller percentage of companies indicated that the improved linkages resulted in positive impact on their resources and capabilities compared to the other direct impact measures described immediately above. Therefore, it is evident that companies participating in the NIY Program were more likely to attribute impact to their business functions that improved the most (e.g. planning, selling, raising capital), than to linkages with networks and other NIY participants.

As noted above, the non-financial support initiatives offered by Tekes through the NIY Program (Mentoring by Tekes advisors, Contacts with public or private investors, Assistance with investor presentations, and Contacts with business advisors, accelerators, or board members), together with financial support, contribute the most to improvements in company performance.

We also observe that while cooperation and communication with Tekes was overwhelmingly favorable, a minority of participants expressed concern with bureaucracy associated with the program structure.⁴

Tekes - Facilitation of Private Financing

For companies to grow in a highly competitive global economy, and sustain a competitive advantage, technology advancements through R&D must continue, business plans must be modified and updated, market research conducted and analyzed, customer service expanded and improved, etc., all while strategic objectives are maintained. To do so requires that companies have sufficient capital to support such growth, above and beyond the funding provided by the NIY Program.

We found that the NIY Program's direct impact on facilitating improvements to the financing capabilities of companies is the best predictor of companies' ability to raise additional capital from private and public sources. Such impacts were achieved through Tekes mentoring, advisors, and by other means.

Moreover, we found that companies used the funding obtained through participation in the NIY Program primarily to strengthen their international sales networks and marketing capabilities compared to all other business functions. It is clear that the funding provided by the program affords companies the opportunity to create their own international networks, which is extremely important for successful international growth.

A large component of the NIY Program is the provision of funding throughout the three program stages. The respondents indicated that the receipt of funding from the program had enabled their organization to make the necessary investments to grow their business. Furthermore, a number of the respondents who mentioned funding in their comments indicated that receiving money at the beginning of their company's lifecycle was critical for success.

Therefore, the fact that 70% of the companies attributed positive impact to the NIY Program on their improved ability to raise capital is a clear indication of how Tekes' funding, and non-financial support, is helping companies find and leverage private funding networks. By continuing to improve companies financing capabilities, the NIY Program will increase the participant's ability to raise additional capital and succeed in the highly competitive global economy.

⁴ The Evidence Network recognizes the importance of accountability for public funds, which necessarily introduces additional decision criteria into the spending decisions, often not fully appreciated by small high growth companies.

Evaluation Goal 3:

Impact of the NIY Program concerning market failure and early stage funding in Finland

Market Failure – Some Background

Markets can fail to provide socially optimal outcomes for a number of reasons including monopolistic power that may keep prices unnaturally high or quality unnaturally low, externalities such as pollution and the depletion of natural resources⁵, and under-investment in public goods. For innovation policy, the most relevant form of market failure is the underinvestment in public goods, particularly underinvestment in research and in the commercialization of new knowledge. Private investors are unlikely to make socially optimal investments in research because it is unlikely that they will be able to capture the benefits of their investments as research community objectives and norms dictate the open dissemination of findings among members of the scientific community and beyond. But governments may invest in research because the outputs may benefit their citizens, because it is a necessary cost of participating in the global scientific community, and because research investments produce measurable outputs in the form of publications, patents, and awards that are used to compare nations.

But neither private nor public investors are likely to make socially optimal investments in the commercialization of new knowledge. The commercialization of new knowledge is a long-term, high-risk process that rarely produces measurable outcomes. This is because large investments must be made in developing technology, understanding the market, and bringing together the network of knowledge, skills, and resources required to bring the new technology to market. Many entrepreneurs that try to commercialize new knowledge may work for years only to close their businesses because the financing required to sustain the commercialization process could not be found. Even venture capitalists are reluctant to invest in early stage companies, and prefer to invest in less risky companies that are already generating consistent revenue.

This market failure, also known as the innovation gap, the commercialization gap, or the “valley of death” has been observed by many researchers (Branscomb & Auerswald, 2002; Dalziel, 2010; Dasgupta & David, 1994; Furman, Porter and Stern, 2002; Kaufmann & Tödtling, 2001; Murphy & Edwards, 2003; Wessner, 2005). The NIY Program is in a unique position to address this market failure that results in a lack of early stage funding for companies. To address this market failure the NIY program must support high potential companies with strong knowledge foundations, which are nonetheless vulnerable as they lack early stage funding capabilities.

Impact of the NIY Program concerning market failure and early stage funding

Tekes offers support for young innovative companies to encourage rapid international growth. Companies that are accepted into the NIY Program are required to have the capacity and willingness to strive for rapid international growth, and have products or services that already generate considerable revenue. The companies accepted are also required to have a credible growth plan, a committed and skilled management team, and must invest strongly in innovation activities. Implementation of these criteria provides evidence that the NIY Program

⁵ Externalities such as pollution and the depletion of natural resources are considered market failures when the costs of producing or using the product or service are borne by those not engaged in its production or use.

is indeed addressing market failure by selecting young innovative companies poised for international growth, but that are also having difficulty financing such growth.

Participant companies receive funding and support from the program in the form of information or advice on equity markets, venture capital investors or practices, and angel investors or practices. Companies are then able to use the funds provided, and knowledge obtained on financing opportunities, to raise additional capital. Further, Tekes also provides additional non-financial support initiatives through the NIY Program (Mentoring by Tekes advisors, Contacts with public or private investors, Assistance with investor presentations, and Contacts with business advisors, accelerators, or board members) that facilitate additional knowledge transfer to companies related to raising investments from private and public sources.

The impact of the NIY Program on its ability to address market failure in Finland can be assessed by improvements to time to market, additional financing received, and changes in innovation activities of participant companies.

The table below provides the results of three measures that illustrate how the NIY Program investments are stimulating activity to mitigate market failure. This table shows that the NIY Program is achieving results, consistent with its intent, and is impacting the lack of early stage funding in Finland.

Performance Measure	Performance since Engagement with NIY Program	Percentage of Companies Attributing Positive Impact to the NIY Program
Time to Market	79% of companies reported time to market for their company to be less than 2 years	94
Additional Financing Received - Private	85% reported that their company received private financing	93
Additional Financing Received - Public	56% reported that their company received public financing	76

Further, we found that 70% of the companies attributed positive impact to the NIY Program on their improved ability to raise capital. It is the ability to leverage the NIY funds and the financing knowledge obtained from participating in the NIY Program that enable these companies to raise additional investments.

Additionally, the table below highlights the impact of the NIY Program on companies' changes to innovation activities. This table shows companies' changes to innovation activities since their first engagement in the NIY Program.

Tekes Growth Evaluation Project (GEP) Measure	Percentage of Companies Attributing at Least Moderate Impact to the NIY Program on Changes to their Innovation Activities
Change in Growth Objectives	100%
Change in Internationalization Strategy	96%
Change in Business Model	65%
Change in Product/Customer Strategy	60%
Change in Product/Service Concept	52%

Finally, it should be noted that our analysis determined that companies that used the non-financial NIY support initiatives (Mentoring by Tekes advisors, Contacts with public or private investors, and Contacts with business advisors, accelerators, or board members) as a consequence of their engagement in the NIY Program, attributed the greatest impact on company performance to the NIY Program.

Therefore, while it is evident that the NIY Program is having impact on market failure, it is doing so not only by providing the initial financing required, but also by providing non-financial support related to raising capital, which companies then leverage to receive additional investments from private and public sources. It is the financial and non-financial support provided by the NIY Program that is essential to mitigate market failure and stimulate innovation activity, leading to market investments that otherwise would not have been possible, for high growth potential companies to survive the "valley of death" and achieve performance in the innovation gap.

Summary

Evaluation Goal 1:

From a policy perspective, the NIY Program directly addresses productivity improvements in enterprises and communities. It does so by providing funds to local SMEs, increasing the capacity for individuals and entrepreneurs to innovate, and by improving companies' resources and capabilities in an effort to increase employment, internationalization, and overall company growth.

From the perspective of firms, the NIY Program is achieving results, consistent with its intent, in helping innovative Finnish companies grow in terms of annual revenues, export revenues, number of international customers, and number of employees.

Evaluation Goal 2:

The experiences of companies participating in the program are overwhelmingly positive, and lend credence to the important role that the NIY Program plays in Finland's business community. Further, participants indicate that in addition to the provision of funding, the value added component of the NIY Program is that it lends structure, organization, and critical thinking capabilities to its participants.

In relation to linkages to networks, it is evident that the companies participating in the NIY Program were more likely to attribute impact where their business functions improved the most (e.g. planning, selling, raising capital), than to linkages with networks and other NIY participants.

Overall, the fact that 70% of the companies attributed the NIY Program with positive impact on their ability to raise additional capital is a clear indication of how Tekes' funding, and non-financial support, is helping companies find and leverage private funding networks. By continuing to improve companies financing capabilities, the NIY Program will increase the participant's ability to raise additional capital and succeed in a highly competitive global economy.

Evaluation Goal 3:

The NIY Program is indeed having impact on market failure and the lack of early stage funding in Finland. It is the financial and non-financial support provided by the NIY Program that is mitigating market failure and stimulating innovation activity, leading to market investments that otherwise would not have been possible, which is enabling participant companies to survive the "valley of death" and achieve performance in the innovation gap.

We determined that companies made changes to their procedures by adopting innovations as a result of the NIY Program related to their growth objectives, international strategies, business models, and their product or service concepts.

References

- Aho, E., *et al.* (2008, June 12). Proposal for Finland's National Innovation Strategy. Retrieved June 4, 2013, from http://ec.europa.eu/invest-in-research/pdf/download_en/finland_national_innovation_strategy.pdf
- Branscomb, L.M. & Auerswald, P.E. (2002). Between invention and innovation: An analysis of funding for early stage technology development. Report prepared for the Economic Assessment Office of the Advanced Technology Program of the US National Institute of Standards and Technology.
- Dalziel, M. (2010). Why do innovation intermediaries exist? DRUID Summer Conference, London, UK. Retrieved June 4, 2013, from <http://www2.druid.dk/conferences/viewpaper.php?id=500976&cf=43>
- Dasgupta, P. & David, P.A. (1994). Toward a new economics of science. *Research Policy*, 23: 487-521.
- Furman, J.L. Porter, M.E. & Stern, S. (2002). The determinants of national innovative capacity. *Research Policy*, 31: 899-933.
- Kaufmann, A. & Tödtling, F. (2001). Science-industry interaction in the process of innovation: The importance of boundary-crossing between systems. *Research Policy*, 30: 791-804.
- Murphy, L.M. & Edwards, P.L. (2003). Bridging the valley of death: Transitioning from public to private sector financing. National Renewable Energy Laboratory (US) NREL/MP-720-34036. Retrieved June 4, 2013, from <http://www.nrel.gov/docs/gen/fy03/34036.pdf>
- Wessner, C.W. (2005). Driving innovations across the valley of death. *Research-Technology Management*, January-February.
- Martin, S. & Scott, J.T. (2000). The nature of innovation market failure and the design of public support for private innovation. *Research Policy*, 29 (4-5): 437-447.

Introduction

This document provides an independent, third-party assessment of the impact of Tekes' Young Innovative Companies (NIY) Program. The NIY Program offers support for young innovative companies to achieve rapid international growth. The assessment was conducted by The Evidence Network during May 2013.

Tekes is Finland's main funding organization for research, development, and innovation. In 2012, Tekes made funding decisions on 1,640 projects, for a total investment of €570 million. Over the past few years, Tekes has increased its funding to young innovative growth companies, providing approximately €103 million in funding to Finnish companies through the NIY Program.

The NIY Program consists of three phases. The preliminary phase encourages young and innovative companies that are pursuing rapid international growth to prepare a comprehensive business plan or improve an existing plan. The preliminary phase lasts a maximum of six months and the available funding for each company is a maximum of €50,000. After the preliminary phase, and once the company has a business plan for growth, it may submit a development plan for Phase One funding, which is typically about €250,000. Companies accepted into Phase One must be small in size, less than six years old, and devote a minimum of 15% of their expenditures to research or development. Once a company has achieved the objectives set out in Phase One, and has been deemed an attractive investment proposition by an external evaluation panel of investment experts, it may apply for Phase Two funding. The aim of the second phase of funding is to accelerate and enhance international growth of the company's operations. During Phase Two, companies may receive a maximum of €750,000. The total funding by the NIY Program is a maximum of €1 million per company, with an additional 25% available in areas eligible for regional aid.

To assess the impact of the NIY Program on companies, TEN developed a customized questionnaire based upon TEN's impact assessment methodology (see Appendix A) and key elements of the NIY Program's logic model. On May 6th, 2013, an email was sent by Marjo Ilmari, Director, Startup Companies, inviting 151 participants that had engaged with the NIY Program to participate in a web-based survey. After three email reminders and 77 follow-up telephone calls, 108 participants responded to the survey for a response rate of 72%. Further data on the response profile of the NIY Program's participants is provided in Appendix B.

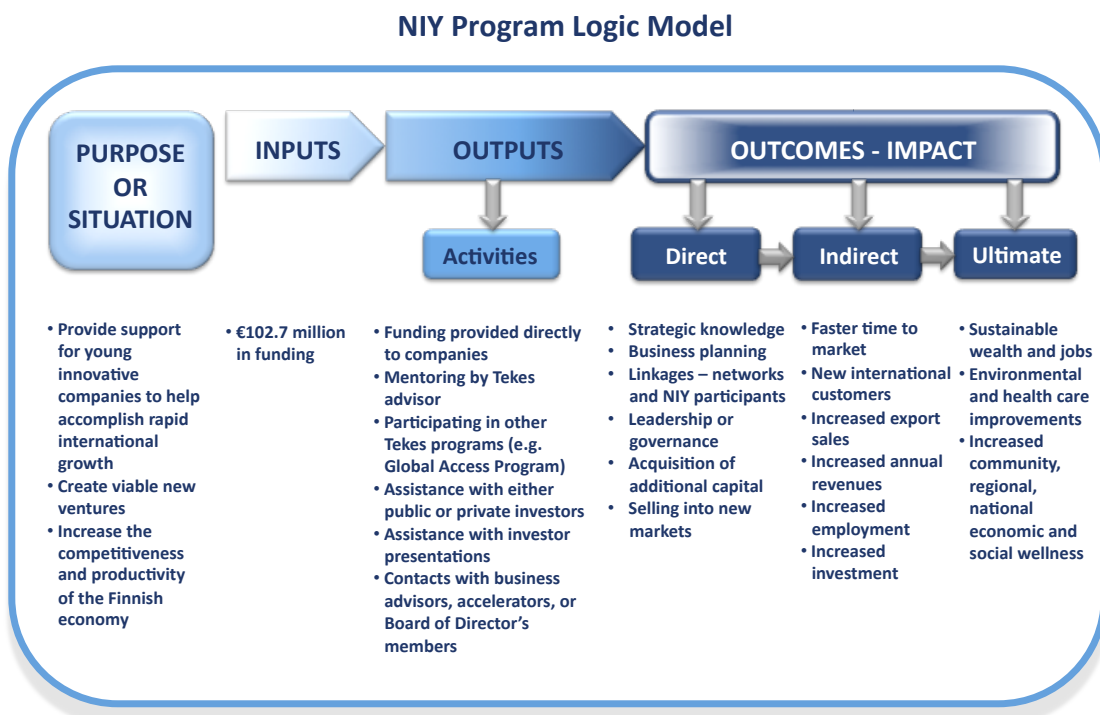
NIY Program Logic Model

Following TEN's methodology and logic model approach, we have developed a logic model specifically suitable to assess the NIY Program's impact on companies. The principal purpose of the logic model is to ensure appropriate measures are used for the impact assessment.

The logic model is summarized in the figure below. The elements include:

- Purpose: the broad intent of the NIY Program.
- Inputs: the resources required to support the NIY Program activities.
- Outputs: the activities and initiatives conducted in support of participant companies.
- Outcomes - Impact: the results of the support from the NIY Program on the participant companies. The measures of impact may be used to assess whether the purpose of the NIY Program, specific to impact on companies, is being achieved. There are three layers of impact:
 - Direct impact – impact that enhances the resources or capabilities of the participant companies.
 - Indirect impact – impact that results in the improved company performance, as defined by market performance, of the participant companies.
 - Ultimate impact – impact that results in final, strategic, or longer-term benefits that accrue beyond the participant companies, for communities, industries, economies, societies, and the environment.

Reading from left to right, the logic model identifies the broad purposes of the NIY Program and the situation that it addresses. It provides a series of 'if-then' or 'cause-effect' relationships that lead to expected impacts. For example, if the inputs are available, then activities can be mobilized, and if suitable activities are mobilized to create effective outputs offered to participants, then impacts may be expected.



As shown at the top-left of the diagram, the NIY Program's purpose is to provide support for young innovative companies to help accomplish rapid international growth, create viable new ventures, and increase the overall competitiveness and productivity of the Finnish economy. To achieve these purposes, 102.7 million Euros have been allocated to support companies, together with program administration provided by Tekes. This results in funding, and other non-financial support initiatives, which are provided by Tekes personnel and other program partners to achieve direct impact on companies' resources and capabilities, indirect impact on companies' performance, and ultimate impacts in the form of socio-economic benefits.

Working backwards, from right to left, the logic model shows *how* different types of impact are achieved. The achievement of ultimate impact depends on the achievement of indirect impact on company performance, which in turn depends on the achievement of direct impact on companies' resources and capabilities. The fundamental logic is that the NIY Program achieves impacts on company performance and ultimate impacts by affecting the resources and capabilities of the participant companies.

The NIY Program, which seeks to increase competitiveness and productivity of the Finnish economy (its purpose and desired ultimate impact), does so by facilitating improvements in the performance of companies (its desired impact on companies' performance), for example, fostering faster time to market, new international customers, increased export sales, increased annual revenues, creation of jobs, and increased investment.

Further, the NIY Program facilitates company growth and internationalization by facilitating improvements to the resources and capabilities of local companies (its desired direct impact), through improvements to strategic knowledge, business planning, linkages to networks or other NIY participants, leadership or governance, the acquisition of additional capital, or through improvements to capabilities for selling into new markets.

The NIY Program facilitates improvements to companies' resources and capabilities primarily through financial support, but also through non-financial support (its activities) such as facilitating access to mentors, providing additional support programs, enabling contacts with public and private investors, business advisors, accelerators, etc.

The next section of this report provides information on the client companies in the sample. In the six sections that follow, we provide analyses of the NIY Program's indirect impact on companies' performance; direct impact on the resources and capabilities of companies; analyses of the NIY Program's support initiatives; analyses of relationships between support initiatives, direct impact on companies' resources and capabilities, and indirect impact on companies' performance; analyses of the NIY Program's economic impact; and a thematic analysis of participant interviews. In the final section we provide recommendations and conclude. Appendices provide details on the response profiles of participant companies, examples of questions, segmented indirect impact on companies' performance, segmented direct impact on resources and capabilities of companies, additional 'other' responses, qualitative interview responses, and information on TEN.

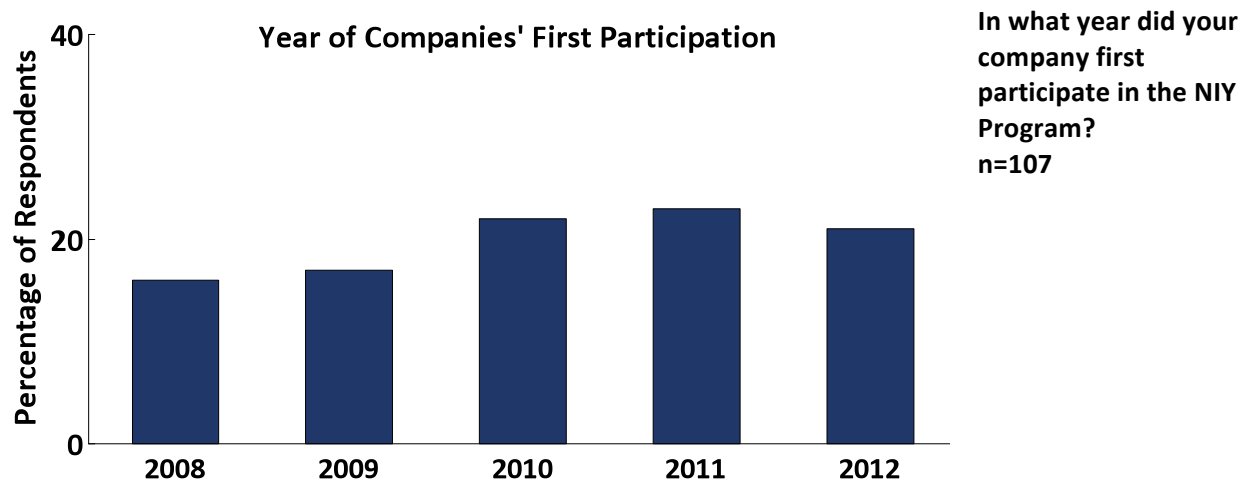
NIY Program: Participant Companies

This section provides information on 108 of the NIY Program's participant companies that responded to the web-based survey.

NIY Program's Participant Companies

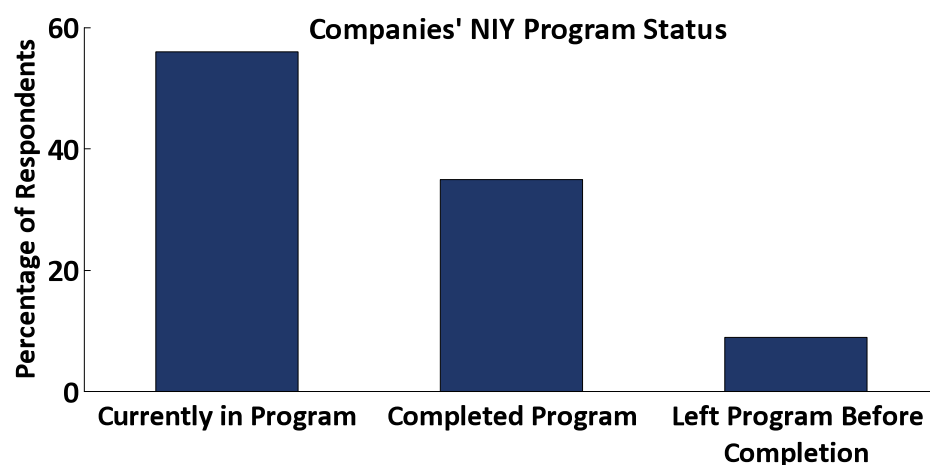
We begin by providing descriptions of the companies that received services from the NIY Program in terms of the first year of participation in the NIY Program, the companies' status within the NIY Program, the type of support received, the year companies were founded, industrial sector, customer industrial sectors, employee demographics, annual revenues, and expenditures made in research or development.

Figures describing the surveyed companies follow, each accompanied by the corresponding survey question, number of respondents (n), and analysis findings.



Findings:

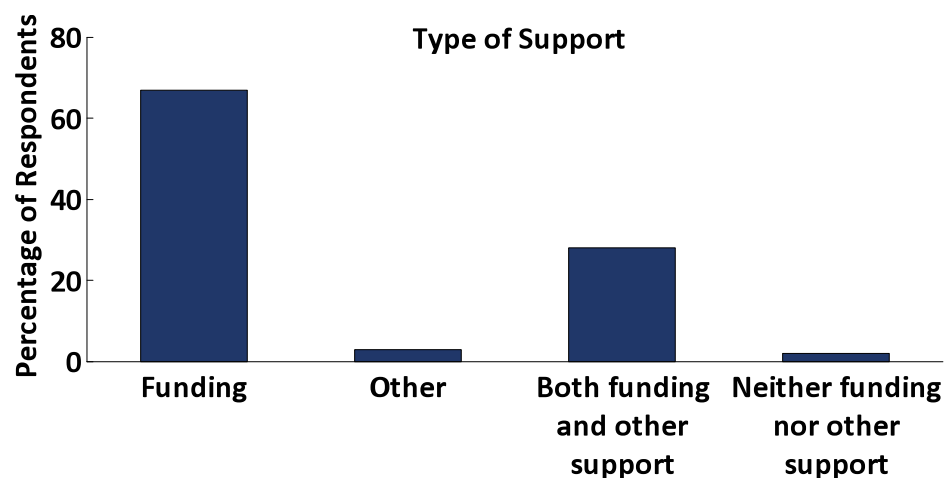
- *The intake of new participants into the NIY Program increased year over year between 2008-2011; participation in 2012 was 35% higher than in 2008.*



Please indicate your company's status within the NIY Program.
n=107

Findings:

- 35% of companies had completed the NIY Program at the time of the survey.
- 56% of companies are presently participating in the NIY Program; 45% of which belong to the ICT sector.

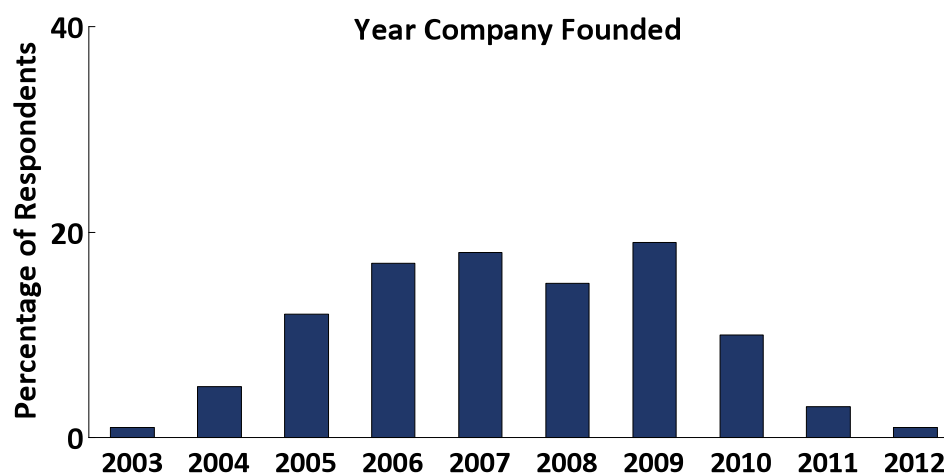


Please indicate the type of support that your company has received through participation in the NIY Program.⁶
n=107

Findings:

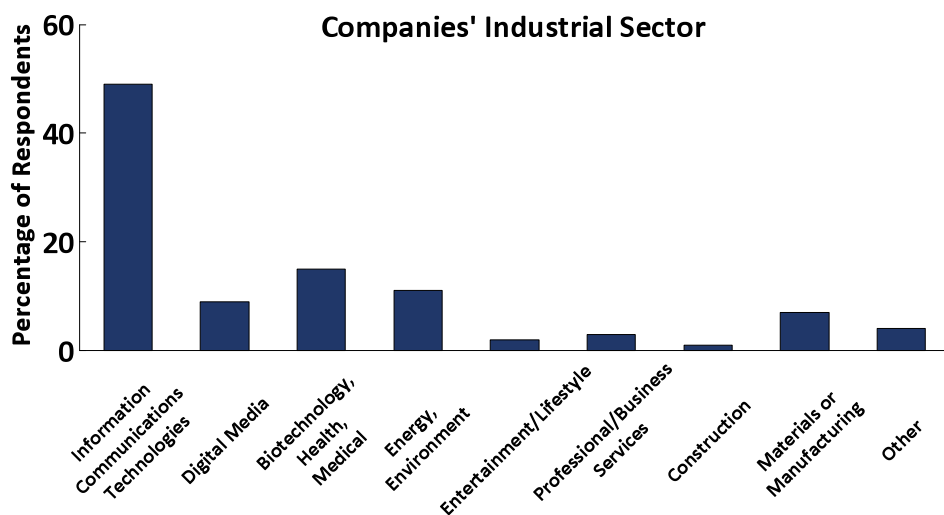
- 67% received only funding from the NIY Program.

⁶ Although 2% of respondents indicated that they received neither funding nor support from the NIY Program, the program is structured in such a way that all participants, even those that leave prior to completion receive funding.



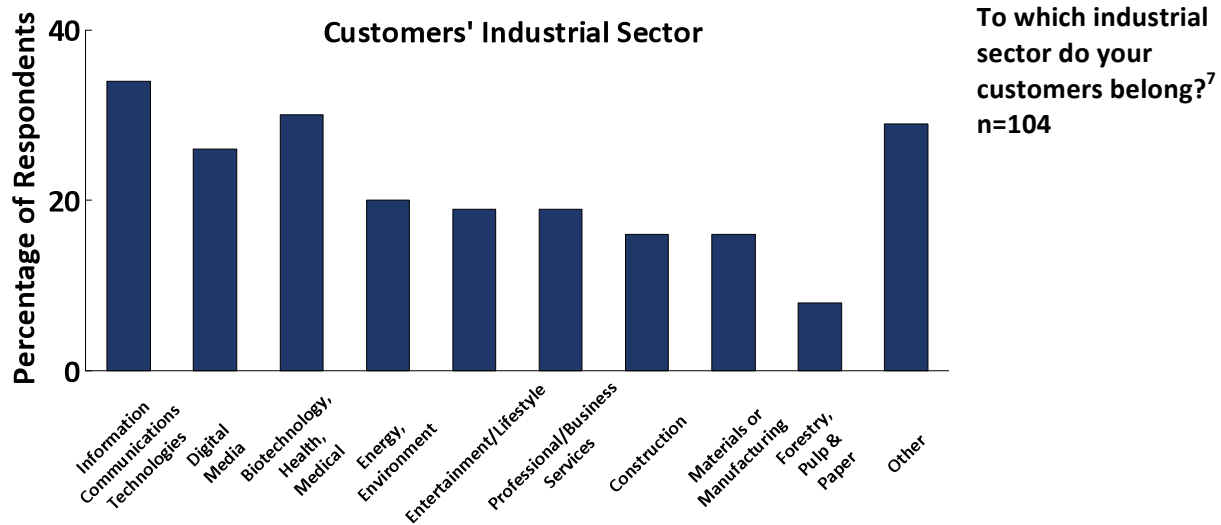
Findings:

- 61% of the companies were established between 2005-2008.



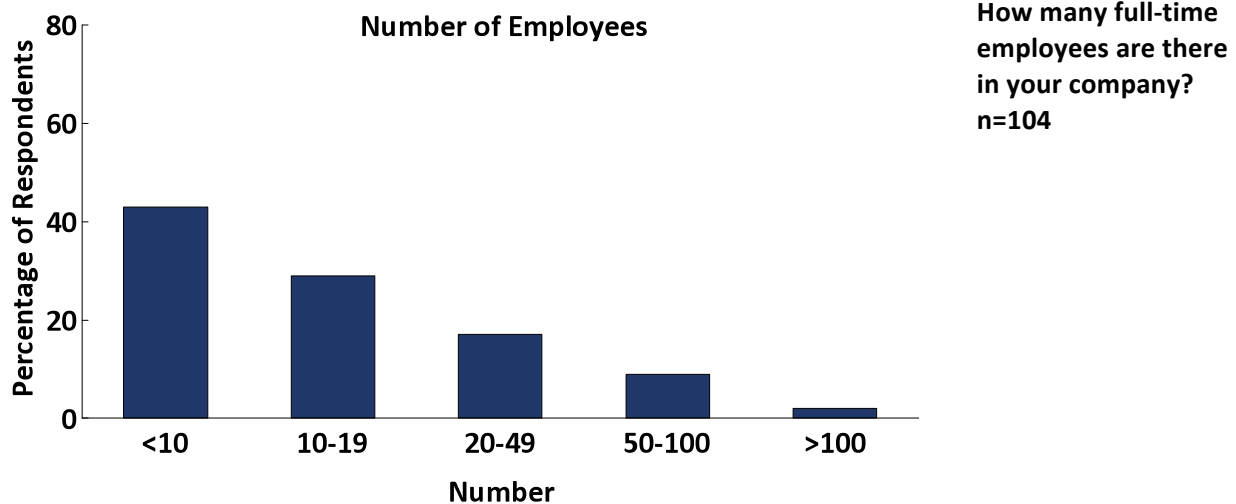
Findings:

- Although the NIY Program engages companies from a broad range of sectors, the ICT sector represents 49% of participants.
- 15% of participants belong to the Biotech, Health and Medical sector.
- For information on 'Other' company industrial sectors identified please see Appendix F.



Findings:

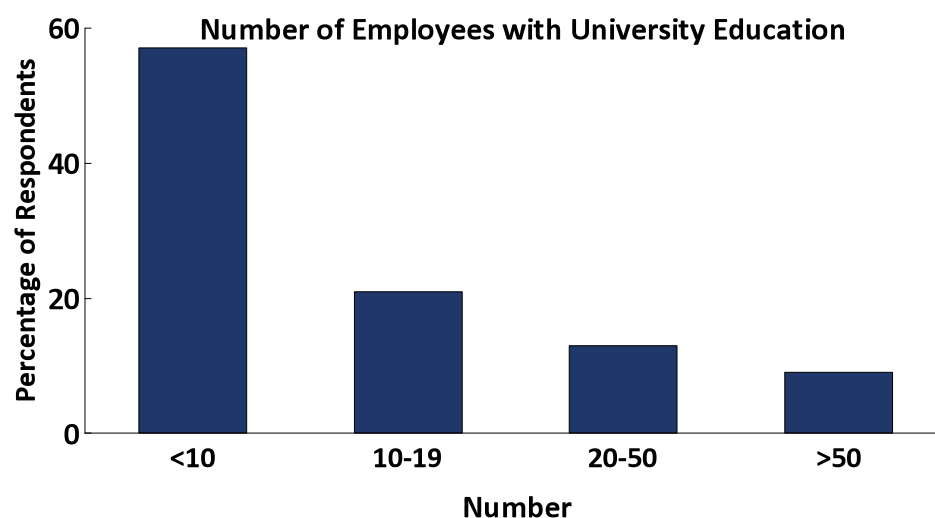
- The NIY Program participants serve clients from a wide array of sectors, ranging from ICT to Forestry, Pulp, and Paper.
- 34% of respondents reported that they served clients in the ICT sector.
- 30% of respondents reported that their customers were in the Biotech, Health and Medical sector.
- For information on 'Other' customer industrial sectors identified please see Appendix F.



Findings:

- Total number of employees for companies responding to the survey was 2,256.
- 43% of the respondents indicated that their company had fewer than 10 employees; 11% of the respondents indicated that their company had 50 or more employees.
- 55% of the respondents from companies with 50 or more employees characterized their company as an ICT company.

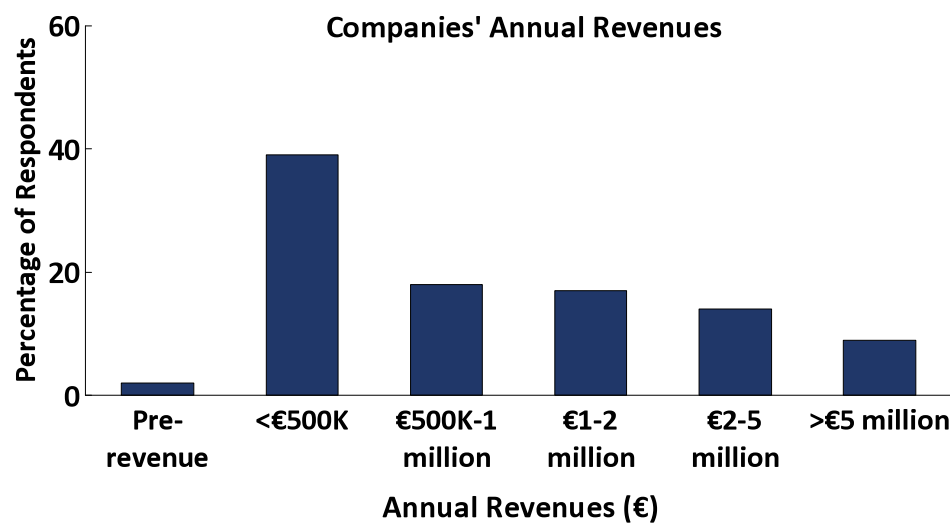
⁷ Numbers do not add to 100% because companies were invited to select more than one customer industrial sector.



How many employees are there in your company with a university degree?
n=104

Findings:

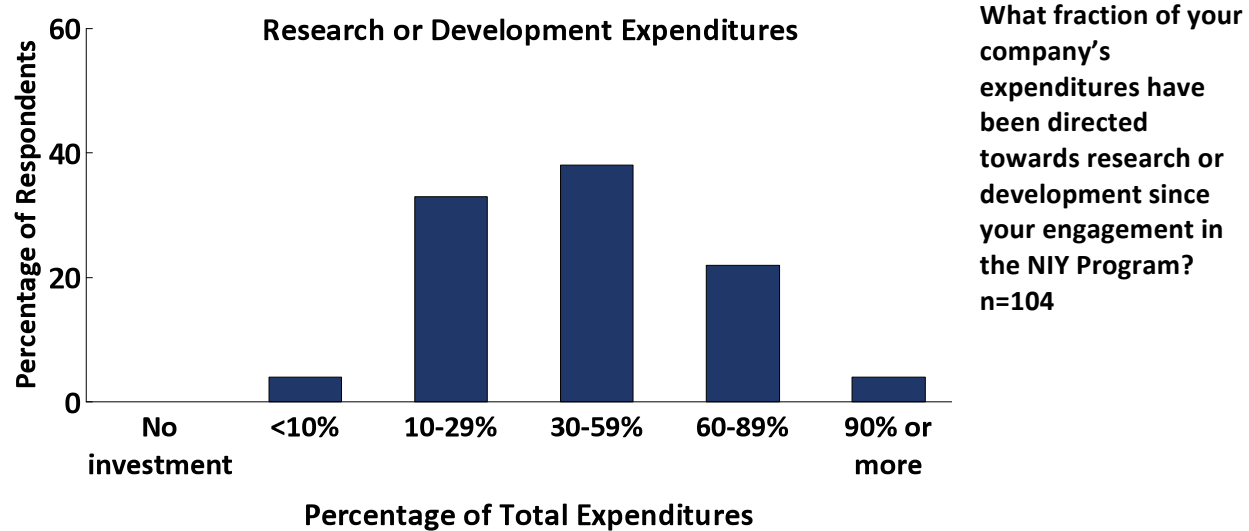
- 57% of companies employ fewer than 10 employees with a university degree.
- 49% of ICT companies have fewer than 10 employees with a university degree.



What are your company's annual revenues?
n=104

Findings:

- Total annual revenues of companies responding to the survey was €171.5 million
- 41% of the respondents reported their annual revenues to be less than €500K or that their company was pre-revenue.
- 9% of the respondents reported their annual revenues to be greater than €5 million.
- 44% of the respondents that reported their annual revenues to be greater than €5 million belong to the ICT sector.



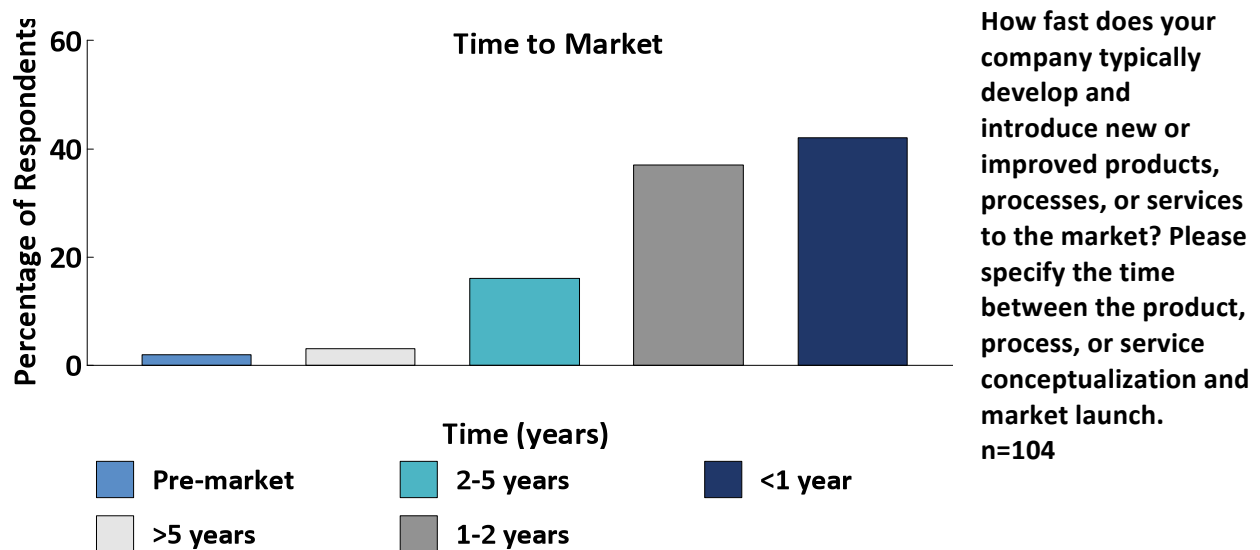
Findings:

- 63% of companies allocated more than 30% of their total expenditure to research or development efforts.

Company Performance

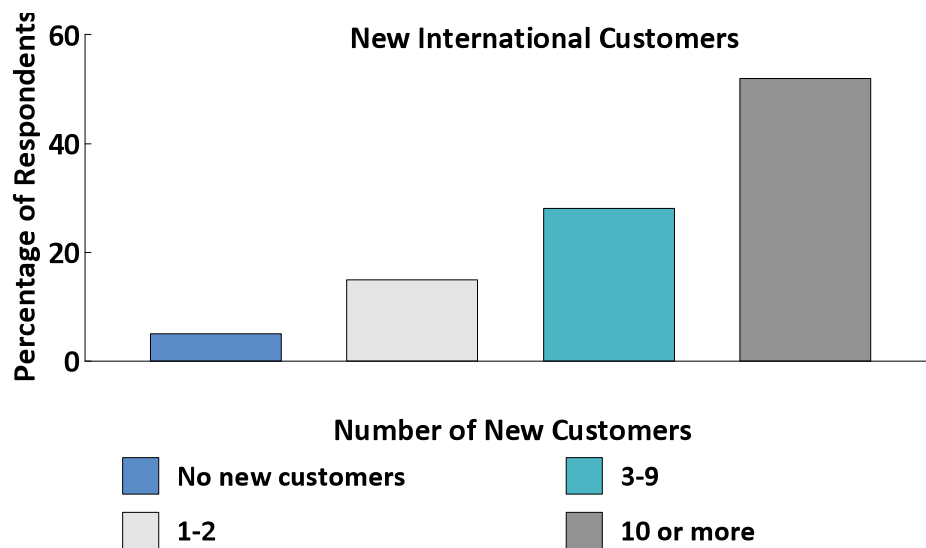
This section provides information on the performance of the surveyed companies. The measures include Time to market, Acquisition of new international customers, Change in employment, Change in annual revenues, Export sales revenues, Receipt of private financing, as well as Receipt of public financing.

Figures describing the surveyed companies follow, each accompanied by the corresponding survey question, number of respondents (n), and analysis findings.



Findings:

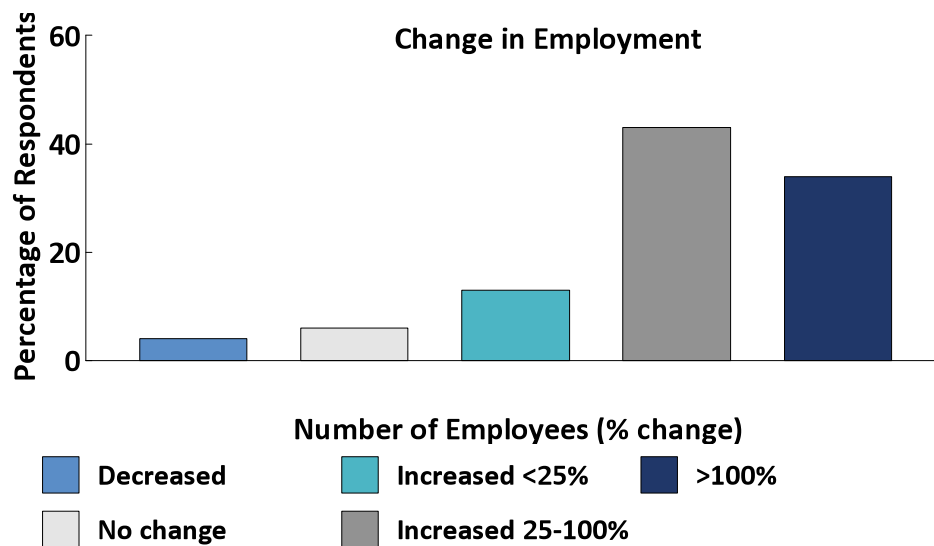
- 42% of the respondents reported the time to market for their company to be less than one year.
- 37% of the respondents reported the time to market to be between 1-2 years.



How many new international customers has your company acquired since its first engagement in the NIY program?
n=103

Findings:

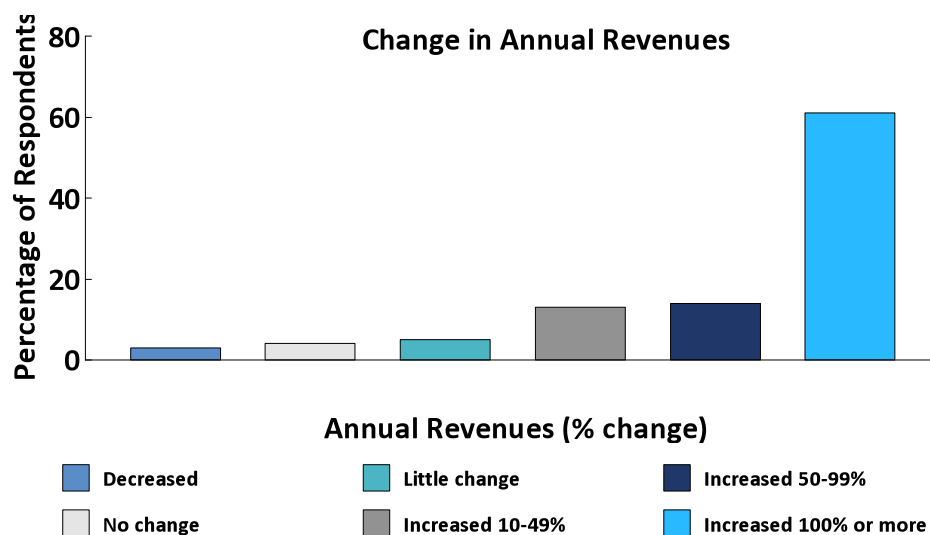
- 52% of the respondents reported the acquisition of 10 or more new customers since their first engagement in the NIY program.
- 76% of respondents who acquired 10 or more new customers have 10 or more employees.
- 5% of respondents reported the acquisition of no new customers.



To what degree has employment at your company changed since its first engagement in the NIY program?
n=104

Findings:

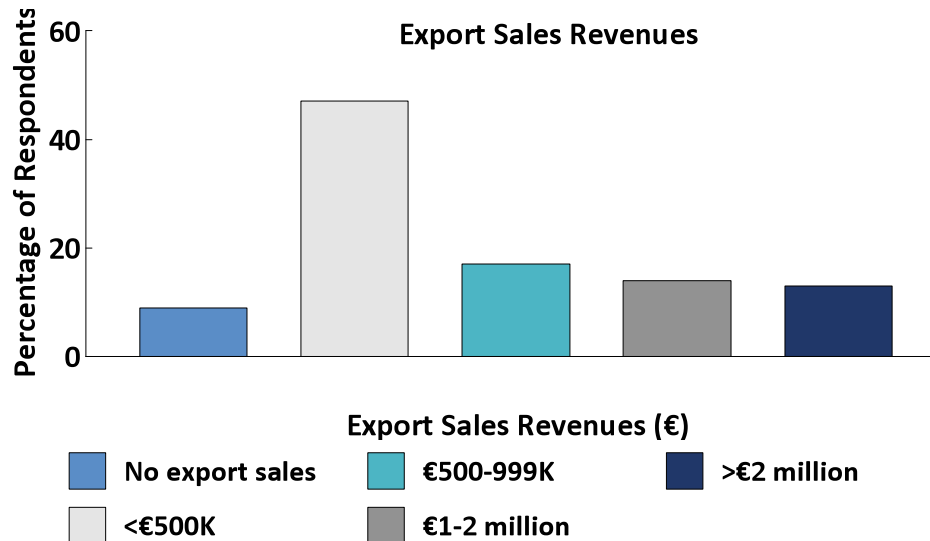
- 34% of respondents reported that their company has increased employment by greater than 100% since their initial engagement in the NIY program.



By how much have your company's annual revenues changed since its first engagement in the NIY program?
n=104

Findings:

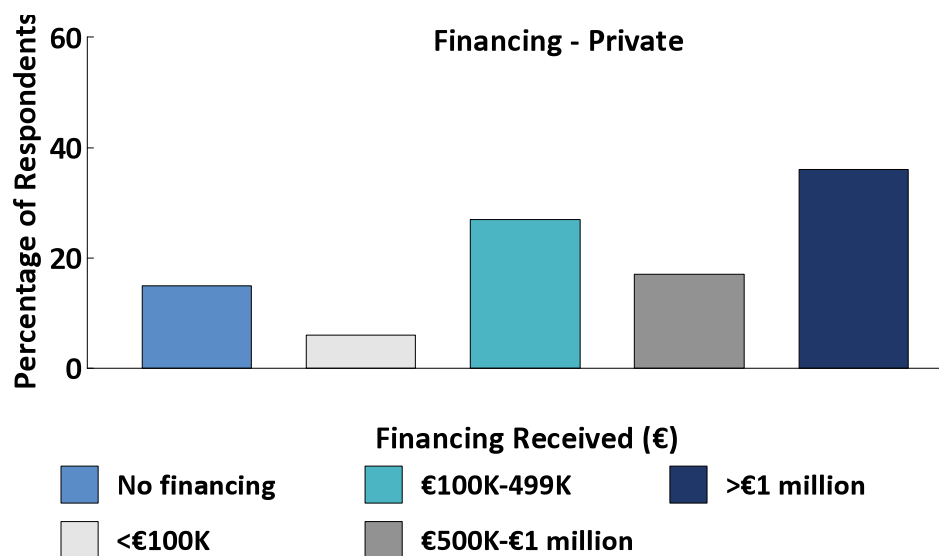
- 61% of companies experienced an increase of 100% or more in their annual revenues since first their engagement in the NIY program, 51% of which belong to the ICT sector.
- 12% reported little change, no change, or a decrease in annual revenues since first engagement in the NIY program.



What are your company's total export sales revenues?
n=104

Findings:

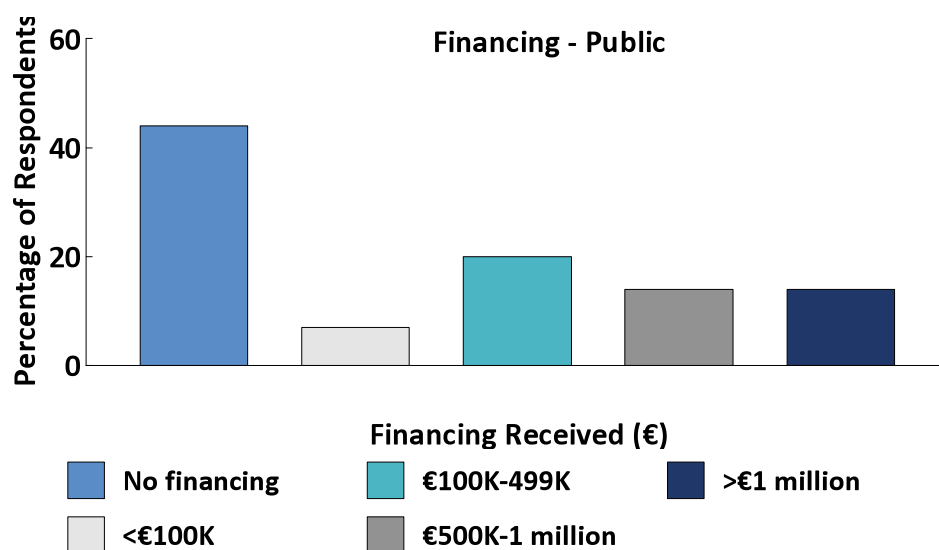
- 47% of the respondents reported that their company has export revenues of less than €500K.
- 44% of the respondents reported that their company has export revenues of €500K or more.
- 9% of respondents have no export sales.



How much financing has your company received from private sources, in addition to that of the NIY program, since its first engagement in the NIY program?
n=103

Findings:

- 52% reported that their company received €500K or more in private financing since their first engagement in the NIY program.
- 36% of respondents reported their company received in excess of €1 million in private financing since their first engagement in the NIY program.
- 15% of respondents indicated that they had received no additional private financing.



How much financing has your company received from public sources, in addition to that of the NIY program, since its first engagement in the NIY program?
n=104

Findings:

- 44% of respondents reported receiving no public financing, in addition to that of the NIY Program, since their first engagement.
- 50% of the companies that reported receiving no public financing began their participation in the NIY Program between 2011-2013.
- 29% report receiving €500K or more from a public source, since their company's first engagement in the NIY program.

NIY Program: Indirect Impact on Company Performance

Following our logic model approach for assessment of innovation impacts, the NIY Program achieves long-term impacts in the form of socio-economic benefits by helping companies to improve their performance. Measuring impact on companies' performance is important because it corresponds to the mission of the NIY Program and provides the hard evidence of results that stakeholders seek. However, company performance depends on a number of factors and so to assess this indirect impact on company performance we consider both the change in company performance and the degree to which the change is attributable to the NIY Program.

The following table shows the seven company performance measures that were selected to assess the NIY Program's indirect impact on companies.

Company Performance Measures
<ul style="list-style-type: none">• New international customers• Export revenues• Time to market• Change in employment• Change in annual revenues• Receipt of private financing• Receipt of public financing

Respondents were asked to assess the NIY Program's impact on company performance. The questionnaire contained instructions for the entire section, followed by questions with similar wording for each indirect impact measure, for example:

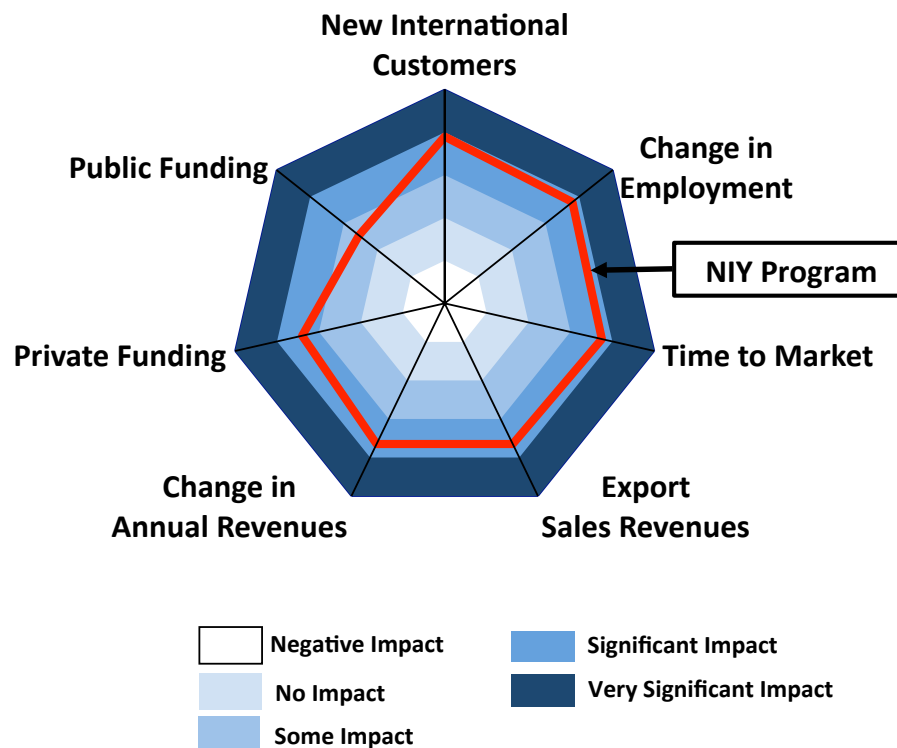
In the questions that follow, please indicate your company's performance, and in the second half of the question indicate the NIY Program's impact on your company's performance.

By how much have your company's annual revenues changed since its first engagement in the NIY Program?

To what degree has the NIY Program impacted your company's change in annual revenues?

Details on our standardized question format are provided in Appendix C.

The figure below shows average indirect impact on companies' performance for the seven company performance measures.⁸ The specific survey questions representing each measure are provided adjacent to the frequency distribution charts on the following pages. Reading clockwise, the average impacts on company performance range from the high-end of 'significant impact' for the New international customers measure to the middle of the 'some impact' range for the Public funding measure.



Average Indirect Impact of the NIY Program on Company Performance (all measures)

⁸ For the majority of measures, impact is measured on a scale of 0 to 10 using the following weights: 'Negative impact' 0, 'No impact' 2.5, 'Some impact' 5.0, 'Significant impact' 7.5, 'Very significant impact' 10.0, 'Not applicable' n/a. The Change in employment measure was surveyed in quantitative terms and as such impact is measured on a scale of 0 to 10 using the following weights: 'Negative impact' 0, 'Less than 5% impact attributable' which is coded as 'No impact' and given a weight of 2.5, 'Between 5% and 24% impact attributable' which is coded as 'Some impact' and given a weight of 5.0, 'Between 25% and 49% impact attributable' which is coded as 'Significant impact' and given a weight of 7.5, 'Between 50% and 100% impact attributable' which is coded as 'Very significant impact' and given a weight of 10.0. The Change in annual revenues measure was also surveyed in quantitative terms and as such impact is measured on a scale of 0 to 10 using the following weights: 'Negative impact' 0, 'No impact' 2.5, 'Less than 25% impact attributable' which is coded as 'Some impact' and given a weight of 5.0, 'Between 25% and 49% impact attributable' which is coded as 'Significant impact' and given a weight of 7.5, 'Between 50% and 100% impact attributable' which is coded as 'Very significant impact' and given a weight of 10.0.

We tested for significant differences among the measures and found that the impact attributed to the NIY Program on companies' New international customers was higher than the impact attributed to the NIY Program on receipt of private and public financing (significant at the 99% confidence level).

We also seek to understand the distribution of scores around the averages reported above to validate the relative importance of the seven company performance impact measures. We removed from the sample those respondents who indicated specific measures were not applicable, and then determined the percentage of respondents who report positive indirect impact on company performance (i.e., 'some impact', 'significant impact', or 'very significant impact'). Respondents reported the following types of impact on their companies to be 'some', 'significant' or 'very significant':

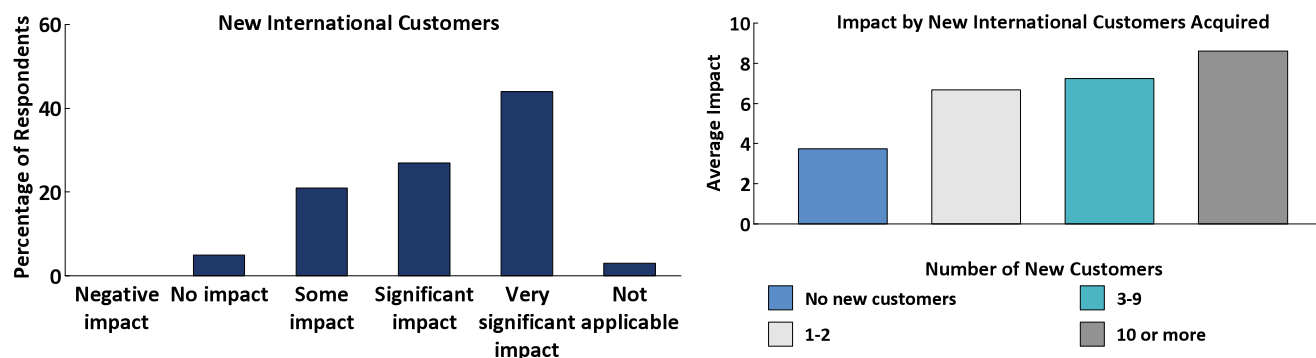
- Acquisition of new international customers (95% of respondents)
- Export revenues (95%)
- Time to market (93%)
- Change in employment (93%)
- Change in annual revenues (92%)
- Receipt of private financing (87%)
- Receipt of public financing (61%)

Impact on company performance was further analyzed with respect to company information collected through specific survey questions, presented earlier in this report. The following figures give each impact on company performance question, number of respondents (n), and average score for that measure (out of 10), followed by a figure that shows the frequency distribution of responses. The figures on the right show the average impact scores (out of 10) segmented according to company performance results. The findings from the analysis can be found below each figure. Details on question format are provided in Appendix C.

The number of respondents who chose 'n/a' (not applicable) also merits attention. As an explanation of their presence, it is not expected that all companies will report impact on all measures, and some measures are likely to be more meaningful than others.

To what degree has the NIY Program impacted the number of new international customers acquired by your company?

n=103; Average=7.8

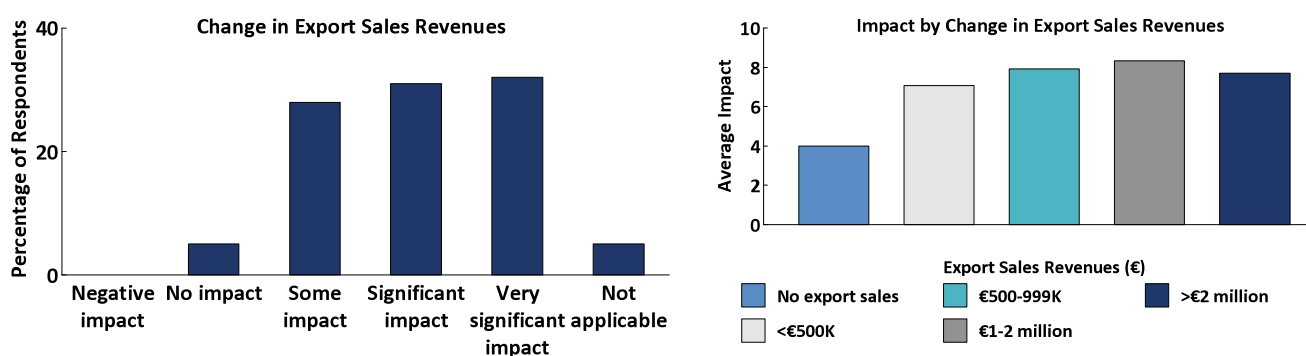


Findings:

- 96% of the companies that acquired new international customers attributed positive impact to the NIY Program on their ability to attract international customers.
- The tendency to attribute impact to the NIY Program increases as company performance increases, as evidenced by higher impact attribution by companies that acquired more international customers as a result of their participation in the NIY Program.

To what degree has the NIY Program impacted your company's total export sales revenues?

n= 104; Average=7.3

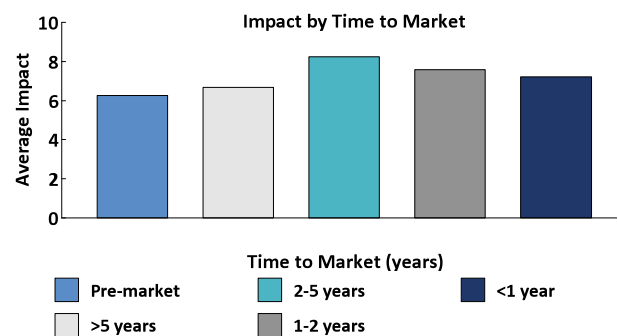
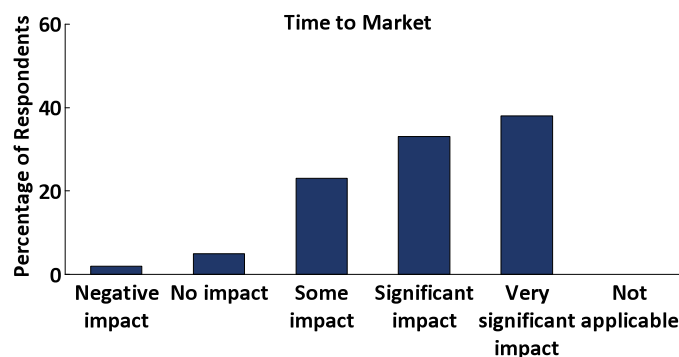


Findings:

- 97% of the companies that had revenues derived from export sales attributed positive impact to the NIY Program on their ability to generate export sales revenues.

To what degree has the NIY Program helped your business improve the time it takes to introduce new products, processes, or services to market?

n=104; Average=7.5

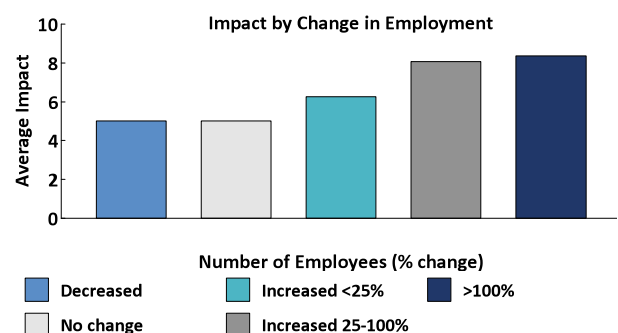
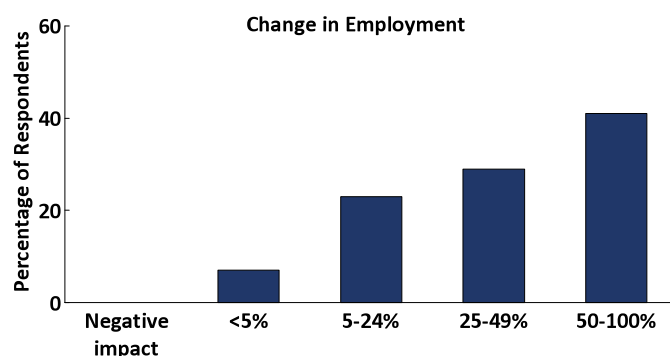


Findings:

- 94% of the companies that had an elapsed time of less than two years between product or service conceptualization and market launch attributed positive impact to the NIY Program on their ability to introduce new products or services to market.

To what degree has the NIY Program impacted change in employment at your company?⁹

n=104; Average=7.6

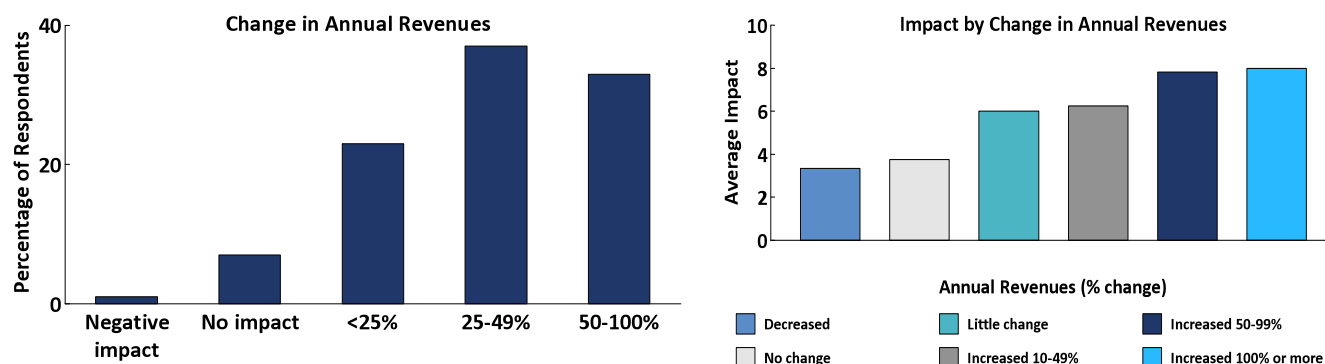


Findings:

- 96% of the companies that experienced an increase in employment since first engagement in the NIY Program attributed positive impact to the NIY Program on their ability to create or preserve jobs.
- The tendency to attribute impact to the NIY Program increases as company performance increases, as evidenced by higher impact attribution by companies that experienced greater positive change in employment.

⁹ Measure was surveyed in quantitative terms and as such impact is measured on a scale of 0 to 10 using the following weights: 'Negative impact' 0, 'Less than 5% impact attributable' which is coded as 'No impact' and given a weight of 2.5, 'Between 5% and 24% impact attributable' which is coded as 'Some impact' and given a weight of 5.0, 'Between 25% and 49% impact attributable' which is coded as 'Significant impact' and given a weight of 7.5, 'Between 50% and 100% impact attributable' which is coded as 'Very significant impact' and given a weight of 10.0.

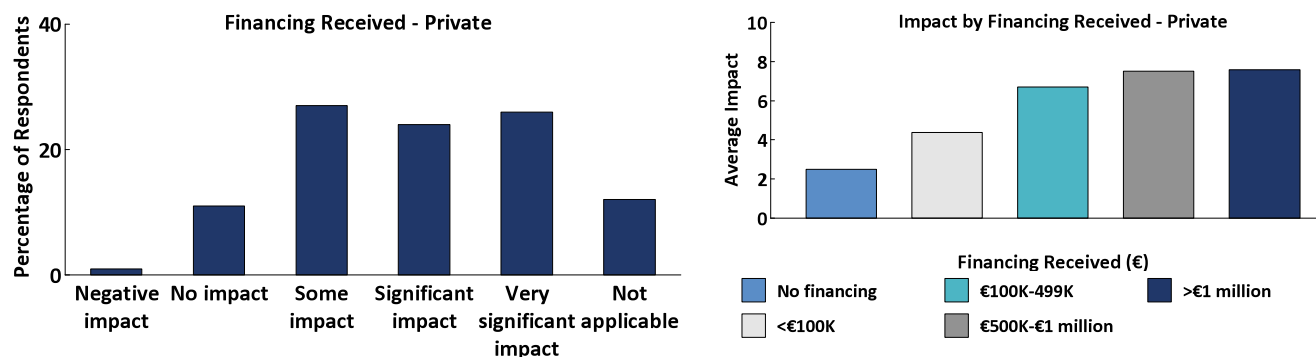
To what degree has the NIY Program impacted your company's change in annual revenues?¹⁰
n=104; Average=7.3



Findings:

- 90% of the companies, whose annual revenues increased since first engagement in the NIY Program, attributed positive impact to the NIY Program on their company's change in revenues.

To what degree has the NIY Program impacted your company's financing received from private sources?
n=104, Average=6.8



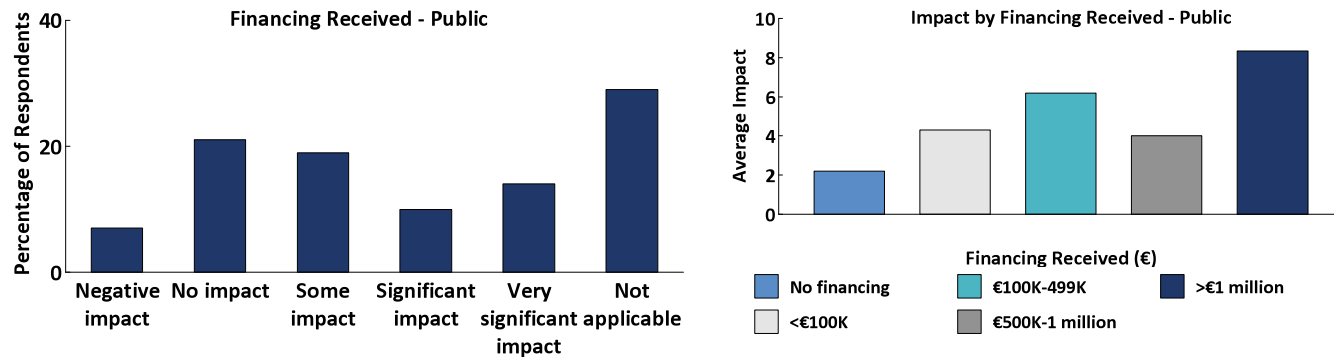
Findings:

- 93% of the companies that received private financing since their first engagement in the NIY Program attributed positive impact to the NIY Program on their ability to attract financing from private sources.

¹⁰ Measure was surveyed in quantitative terms and as such impact is measured on a scale of 0 to 10 using the following weights: 'Negative impact' 0, 'No impact' 2.5, 'Less than 25% impact attributable' which is coded as 'Some impact' and given a weight of 5, 'Between 25% and 49% impact attributable' which is coded as 'Significant impact' and given a weight of 7.5, 'Between 50% and 100% impact attributable' which is coded as 'Very significant impact' and given a weight of 10.

To what degree has the NIY Program impacted your company's financing received from public sources?

n=104, Average=5.1



Findings:

- 76% of the companies that received public financing since their first engagement in the NIY Program attributed positive impact to the NIY Program on their ability to attract financing from public sources.

Appendix D shows detailed information for all impact on company performance measures segmented according to the first year of participation in the NIY Program, the company's status within the NIY Program, the year companies were founded, industrial sector, customer industrial sectors, employee demographics, annual revenues, and expenditures made in research or development. Appendix D also shows average impact on company performance segmented according to the degree of use of the support initiatives of the NIY Program.

From the information segmented by company attributes, we find that:

- Companies founded between 2001-2004 report greater average impact on company performance than companies founded any time between 2005-2013.
- Companies with 10 or more employees report greater average impact on company performance than those with fewer than 10 employees.
- Companies with annual revenues of €500K-€1 million report lower average impact on company performance than respondents from companies with annual revenues either below €500K (including those in the pre-revenue stage) or above €1 million (significant at the 99% confidence level).

The NIY Program offers the following support initiatives to their participants:

Support Initiatives
<ul style="list-style-type: none">• Mentoring by Tekes advisor• Participation in other Tekes programs• Assistance with either public or private investors• Assistance with investor presentations• Contact with business advisors, accelerators, or Board members

Respondents were asked to rate the different NIY Program support initiatives in terms of the degree of use, from 'Did not use' to 'High degree of use'. From the information segmented by degree of use of the NIY Program support initiatives, we find that:

- The average impacts on company performance for companies that used the Mentoring support initiative to a 'moderate' or 'high' degree were greater than those from companies that 'did not use' this support initiative or used it to a 'low' degree (significant at the 99% confidence level).
- The average impacts on company performance for companies that used the Contacts with either public or private investors support initiative to a 'low' or 'moderate' degree were higher than those from companies that 'did not use' this initiative (significant at the 95% confidence level).
- The average impacts on company performance for companies that used the Investor presentation assistance to a 'moderate' degree were higher than those from companies that used this support initiative to a 'low' degree (significant at the 95% confidence level).
- The average impacts on company performance for companies that used the Contacts with business advisors, accelerators or Board members support initiative to a 'moderate' degree were higher than those from companies that 'did not use' or used it to a 'low' degree (significant at the 99% confidence level).

NIY Program: Direct Impact on Company Resources and Capabilities

Following our logic model approach for assessment of innovation impacts, the NIY Program achieves the indirect impacts on company performance, described in the previous section, by helping to improve companies' resources and capabilities. This improvement to the resources and capabilities of companies is the direct impact of the NIY Program, achieved through its various support initiatives available to companies.

The following table shows the six direct impact measures that were selected using TEN's methodology to assess the NIY Program's impact on improvements to companies' resources and capabilities.

Resources and Capabilities Measures
<ul style="list-style-type: none">• Business planning• Leadership or governance• Strategic knowledge• Selling into new markets• Raising capital• Linkages – networks and NIY participants

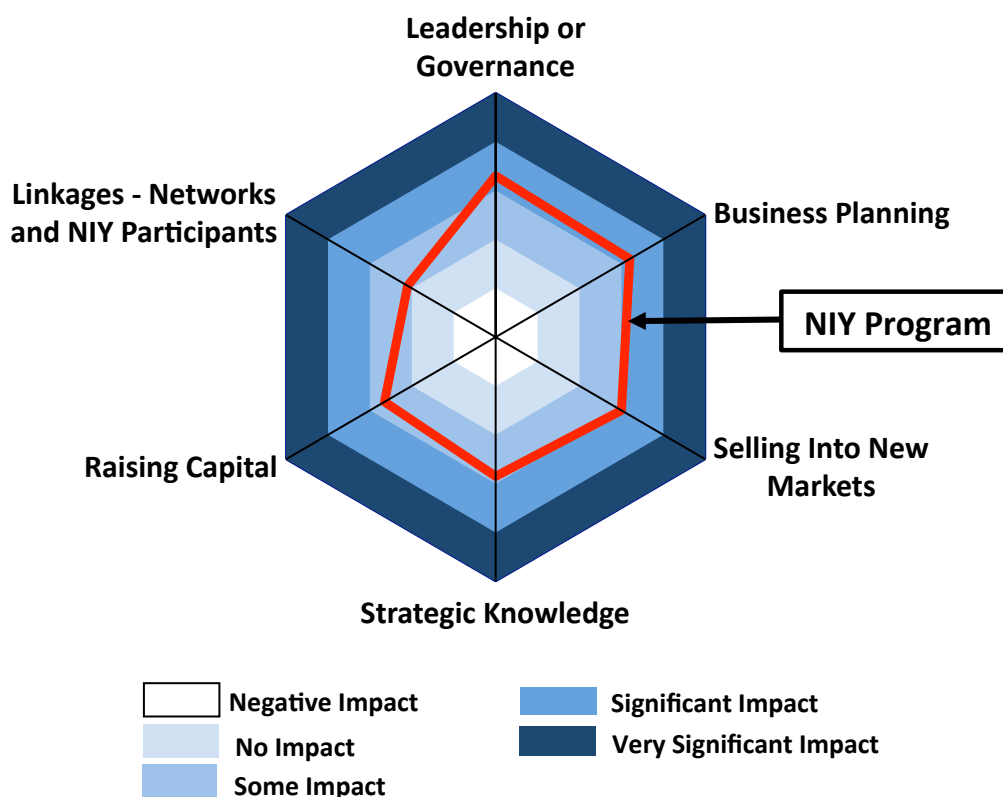
Respondents were asked to assess the NIY Program's impact on the resources and capabilities of their companies. The questionnaire contained instructions for the entire section, followed by questions with similar wording for each impact measure, for example:

In the questions that follow, please indicate the impact of the NIY Program on your company's resources and capabilities. If you have not received support that relates to the question, please check 'Not applicable.'

To what degree were improvements to [direct impact measure] of your company impacted by your participation in the NIY Program?

Details on our standardized question format are provided in Appendix C.

The figure below shows average direct impact responses for all six direct impact measures.¹¹ The specific survey questions representing each measure, together with explanatory examples, are provided adjacent to the frequency distribution charts on the following pages. For convenience, explanatory examples may also be found in the table immediately following the diagram below. Reading clockwise, the average direct impacts on resources and capabilities range from the low-end of 'significant impact' on improvements to Leadership or Governance to the low-end of the 'some impact' range for improvements to Linkages – Networks and NIY Participants.



Average Direct Impact of the NIY Program on Companies' Resources and Capabilities
(all measures)

¹¹ Impact is measured on a scale of 0 to 10 using the following weights: 'Negative impact' 0, 'No impact' 2.5, 'Some impact' 5.0, 'Significant impact' 7.5, 'Very significant impact' 10.0, 'Not applicable' n/a.

NIY Program Direct Impact Measures and Associated Examples

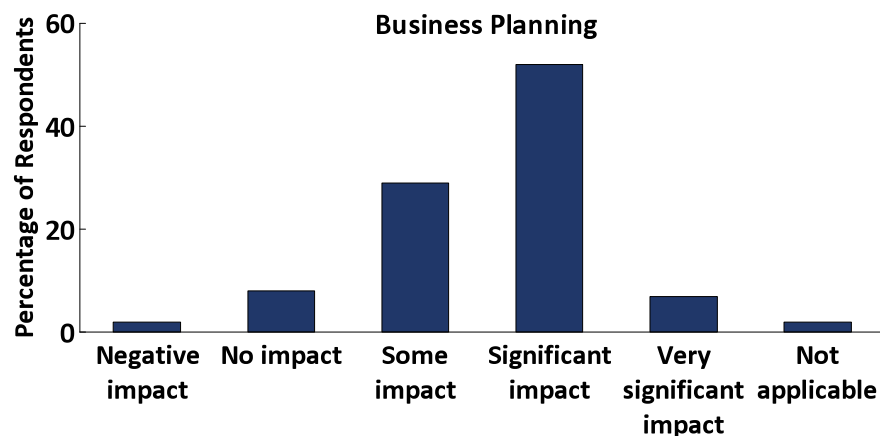
Direct Impact Measure	Examples
Business planning	<i>Assistance with implementation of growth strategies or expansion plans, or development of financial projections, marketing or pricing strategies, operational plans, or cost reduction plans.</i>
Leadership or governance	<i>Ability to hire senior employees or gain access to key individuals strategic to your company's success, or to engage corporate directors or other officials essential to good corporate governance.</i>
Strategic knowledge	<i>Information or advice related to the acceleration or adoption of corporate growth strategies such as those related to expansion of the scale of operations, diversification into new product lines, or expansion of industrial or geographical markets.</i>
Selling into new markets	<i>Information or advice on high-growth market segments, key customers, distributors, sales channels, or other important marketing-related knowledge.</i>
Raising capital	<i>Information or advice on equity markets, venture capital investors or practices, and angel investors or practices.</i>
Linkages – networks and NIY participants	<i>Linkages to investor networks, industry associations, NIY participants, or others through meetings, events or other forums fostered by initiatives of the NIY Program.</i>

We tested for significant differences among the measures and found that the impacts attributed to the NIY Program in terms of improvements to Leadership or governance and Business planning were higher than the impacts attributed to the NIY Program in terms of improvements to Raising capital (significant at the 99% confidence level). We also found that the impacts attributed to the NIY Program in terms of improvements to Selling into new markets were higher than the impacts attributed to the NIY Program in terms of improvements to Linkages to networks and other NIY participants (significant at the 99% confidence level).

We also seek to understand the distribution of scores around the averages reported above to validate the importance of the six direct impact measures. We removed from the sample those respondents who indicated specific measures were not applicable, and then determined the percentage of respondents who report positive direct impact on company resources and capabilities (i.e., 'some impact', 'significant impact', or 'very significant impact'). Respondents reported the following types of improvements to their companies' resources and capabilities to be 'some', 'significant' or 'very significant':

- Business planning (90% of respondents)
- Leadership & governance (88%)
- Strategic knowledge (84%)
- Selling into new markets (80%)
- Raising capital (70%)
- Linkages – networks and NIY participants (62%)

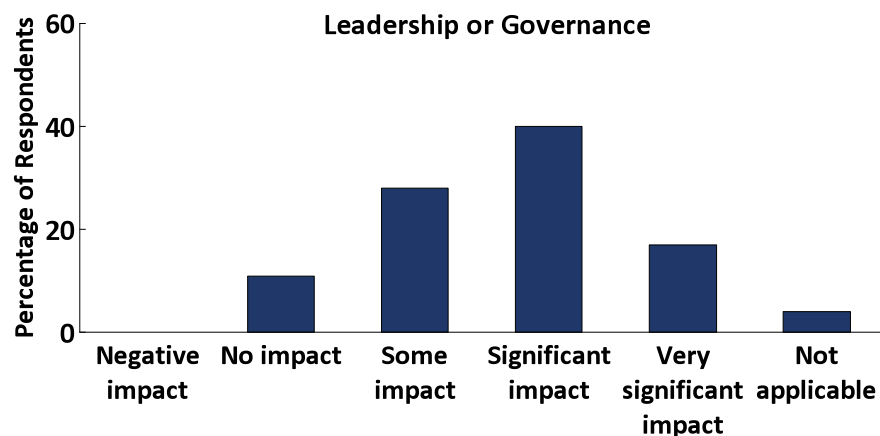
The frequency distributions below show direct impact responses for all six direct impact measures, together with the corresponding survey questions, number of respondents, number of 'not applicable' responses (n/a), and average direct impact scores (out of 10).



To what degree did improvements to business planning, facilitated through your participation in the NIY Program, impact your company?

(Examples include assistance with implementation of growth strategies or expansion plans, or development of financial projections, marketing or pricing strategies, operational plans, or cost reduction plans.)

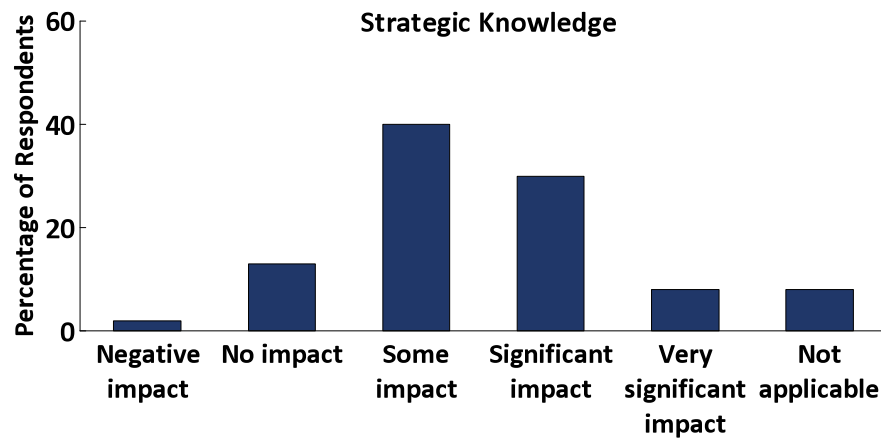
n=103; n/a=2; Average=6.4



To what degree were improvements to leadership or governance of your company impacted by your participation in the NIY Program?

(Examples include the ability to hire senior employees or gain access to key individuals strategic to your company's success, or to engage corporate directors or other officials essential to good corporate governance.)

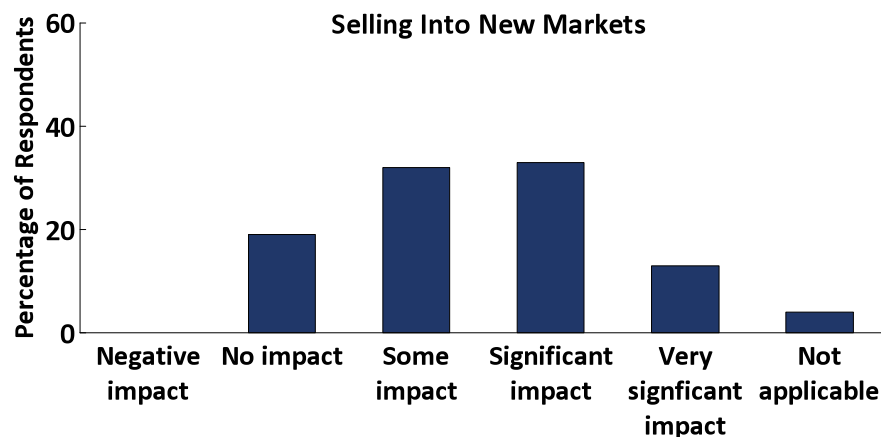
n=105; n/a=4; Average=6.6



To what degree did access to strategic information or advice, from any source, facilitated through your participation in the NIY Program, impact your company?

(Examples include information or advice related to the acceleration or adoption of corporate growth strategies such as those related to expansion of the scale of operations, diversification into new product lines, or expansion of industrial or geographical markets.)

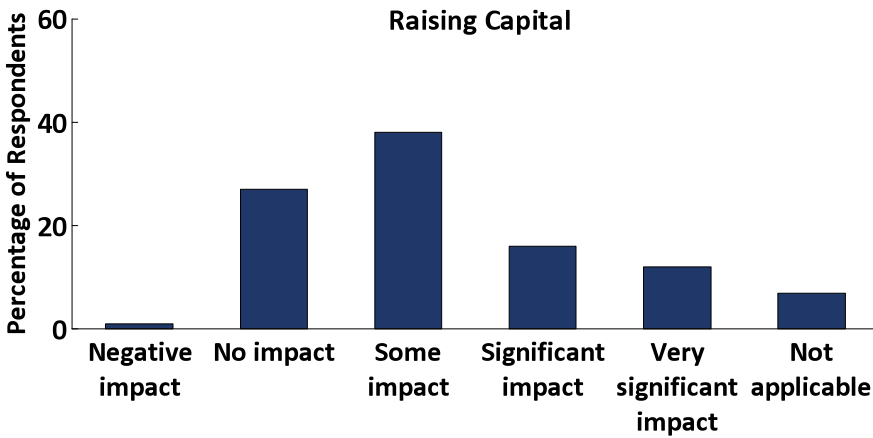
n=105; n/a=8; Average=5.7



To what degree did information or advice on selling into new markets, facilitated through your participation in the NIY Program, impact your company?

(Examples include information or advice on high-growth market segments, key customers, distributors, sales channels, or other important marketing-related knowledge.)

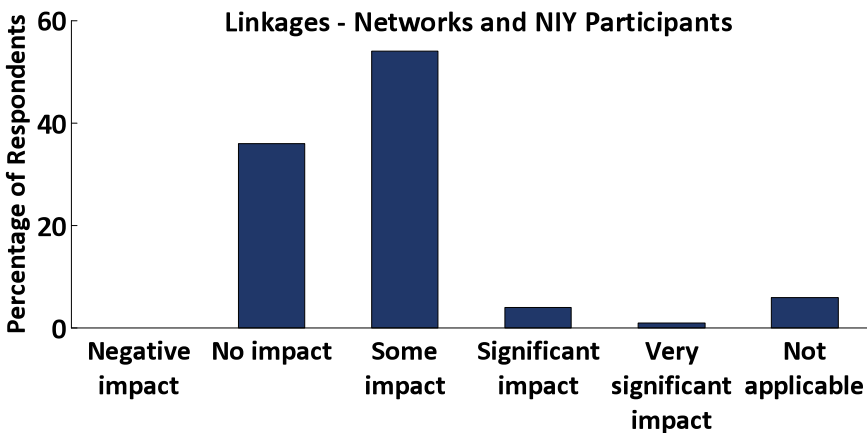
n=104; n/a=4; Average=6.0



To what degree did information or advice on raising capital, facilitated through your participation in the NIY Program, impact your company?

(Examples include information or advice on equity markets, venture capital investors or practices, and angel investors or practices.)

n=104; n/a=7; Average=5.3



To what degree did linkages to innovation support networks or other NIY participants, facilitated through your participation in the NIY Program, impact your company?

(Examples include linkages to investor networks, industry associations, NIY participants, or others through meetings, events or other forums fostered by initiatives of the NIY Program.)

n=104; n/a=6; Average=4.2

Appendix E shows additional information for all direct impact measures segmented according to the first year of participation in the NIY Program, the company's status within the NIY Program, the year companies were founded, industrial sector, customer industrial sectors, employee demographics, annual revenues, and expenditures made in research and development. Appendix E also shows average direct impact scores segmented according to the support initiatives of the NIY Program.

For the information segmented by company attributes, we find that:

- Companies that first participated in the NIY Program in 2012 report greater average direct impact on their resources and capabilities compared to respondents from companies that first participated between 2008 and 2010 (significant at least at the 95% confidence level).
- The group of companies belonging to the ICT, digital media, entertainment and lifestyle sector report greater average impact on their resources and capabilities than respondents from companies belonging to the other surveyed sectors that we identify as Service, Health and Natural Resources (significant at the 95% confidence level).
- Companies with 10 or more employees report greater average impact on their companies' resources and capabilities than respondents from companies with fewer than 10 employees (significant at the 95% confidence level).
- Companies with annual revenues of between €500K-€1 million report lower average impact on their resources and capabilities than respondents from companies with less than €500K in revenues, including those in the pre-revenue stage (significant at the 99% confidence level), and those between €1 million and €5 Million (significant at least at the 95% confidence level).

From the information segmented by degree of use of the NIY Program support initiatives described earlier, we find that:

- The average direct impact on resources and capabilities for respondents from companies that used the Mentoring service at a 'high' degree were greater than those from companies that 'did not use' or used this support initiative to a lesser degree (significant at the 99% confidence level).
- The average direct impact on resources and capabilities for respondents from companies that used the Contact with public or private investors support initiative to a 'moderate' degree were greater than those from companies that 'did not use' or used this support to a lesser degree (significant at least at the 99% confidence level).
- The average direct impact on resources and capabilities for respondents from companies that used the Investor presentation assistance to a 'moderate' or 'high' degree were greater than those that 'did not use' this support initiative (significant at the 99% confidence level).
- The average direct impact on resources and capabilities for respondents from companies that used the Contact with business advisors, accelerators, or Board members support initiative to a 'moderate' or 'high' degree were greater than those that 'did not use' these support initiatives (significant at 99% confidence level).

- The average direct impact on resources and capabilities for respondents that received both funding and non-financial support were higher than those that received only funding (significant at the 99% confidence level).

These findings broadly suggest that the average direct impact on companies' resources and capabilities increases with increasing use of non-financial support initiatives associated with the NIY Program.

Detailed Direct Impacts Resulting from Funding Allocations

Further to the direct impact measures identified in the foregoing section, the funds received from the NIY Program are also deemed to provide a direct impact on the participant companies. As such, each of the business functions to which funds could be allocated was tested against the NIY Program support initiatives. From the information segmented by degree of use of the NIY Program support initiatives, we find that:

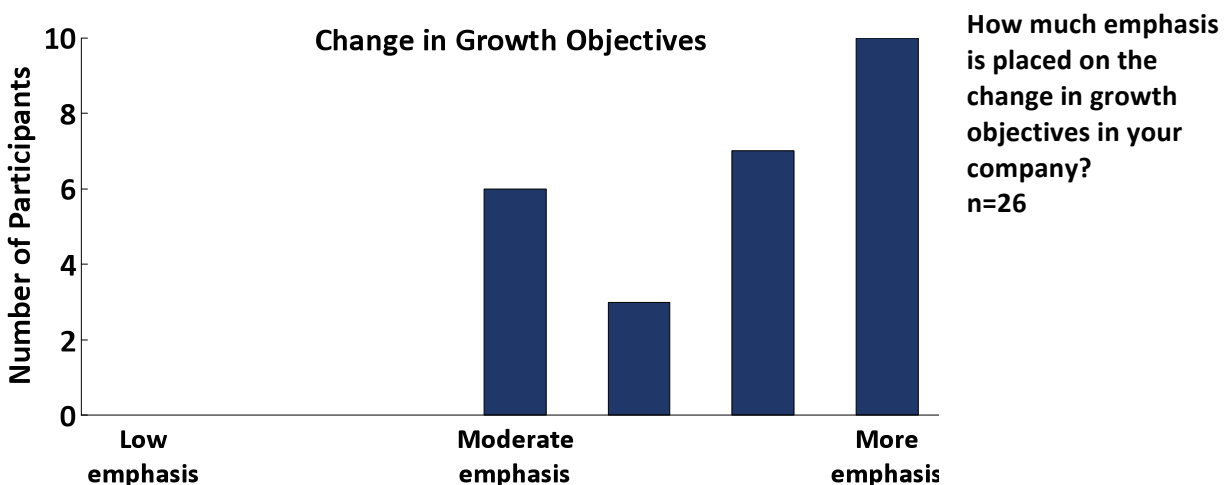
- The average degree of use of the NIY Program support initiatives was higher for companies that used their funds for Concept development with a 'high' degree of use than those that indicated a 'moderate' degree of use (significant at the 99% confidence level).
- The average degree of use of the NIY Program support initiatives was higher for companies that used their funds to Strengthen human resources; improve internal processes with a 'high' degree of use than those that indicated a 'low' degree of use (significant at the 99% confidence level).
- The average degree of use of the NIY Program support initiatives was higher for companies that used their funds to Acquire additional capital with a 'moderate' or 'high' degree of use than those that indicated they focused less of their funding on this business function (significant at least at the 95% confidence level).

These findings suggest that companies using funds for Concept development, Strengthening Human resources or internal processes, or Acquiring additional capital used the non-financial support initiatives associated with the NIY Program to a higher degree.

Direct Impact on Resources and Capabilities Results from Previous Tekes Survey

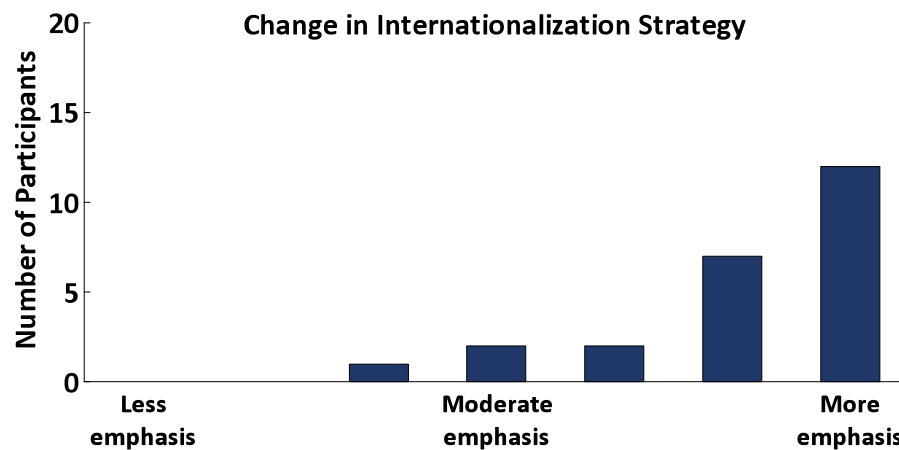
In addition to the findings resulting from the TEN survey conducted in May 2013, a subset of the results from the Tekes Growth Evaluation Project (GEP), a previous participant survey conducted by Tekes has been included to provide additional insight into the direct impact of the NIY Program on the participant companies. These direct impact measures are consistent with TEN's definition of direct impact on improvements to the resources and capabilities of companies.

The scale used for these direct impact measures ranges from 1 – 7. A score of 1 indicates less emphasis on change; 4 indicates moderate emphasis or change; and 7 indicates more emphasis or radical change since admission into the NIY Program. Our analysis focuses on the percentage of program participants that indicated a value of 4 or greater in response to the measures of change illustrated in the frequency distributions below. Each question in the previous Tekes survey is shown to the right of the diagrams together with the number of respondents 'n'. We selected this value as the threshold as it indicates at least a moderate effort made by the participants to change their organizations to achieve the desired outcomes of the NIY Program; namely growth and internationalization.



Findings:

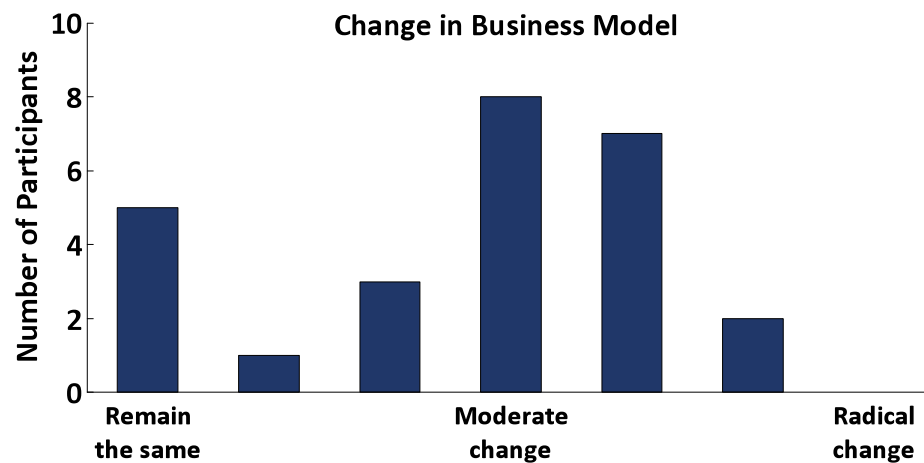
- *100% of respondents indicated at least moderate emphasis was placed on addressing growth objectives.*



How much emphasis is placed on changing the international strategy of your company?
n=24

Findings:

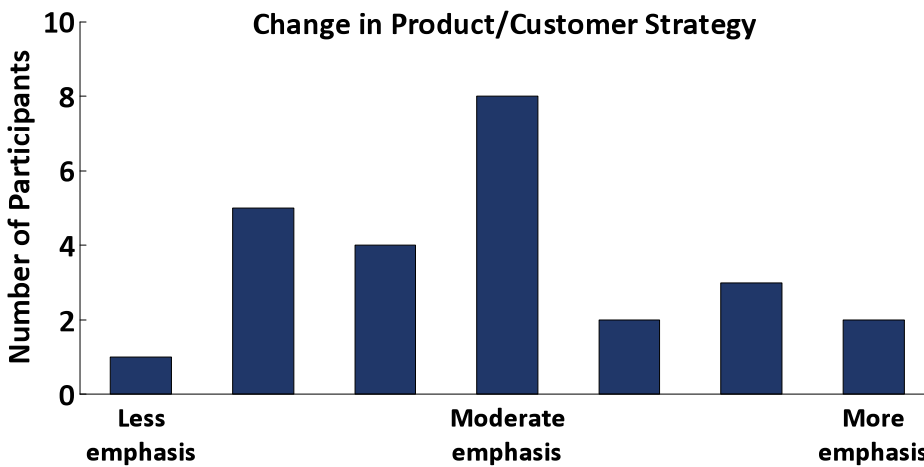
- 96% of respondents indicated that their company placed at least moderate emphasis on altering the international strategy of their business.



How much change to your business model has occurred within your company?
n=26

Findings:

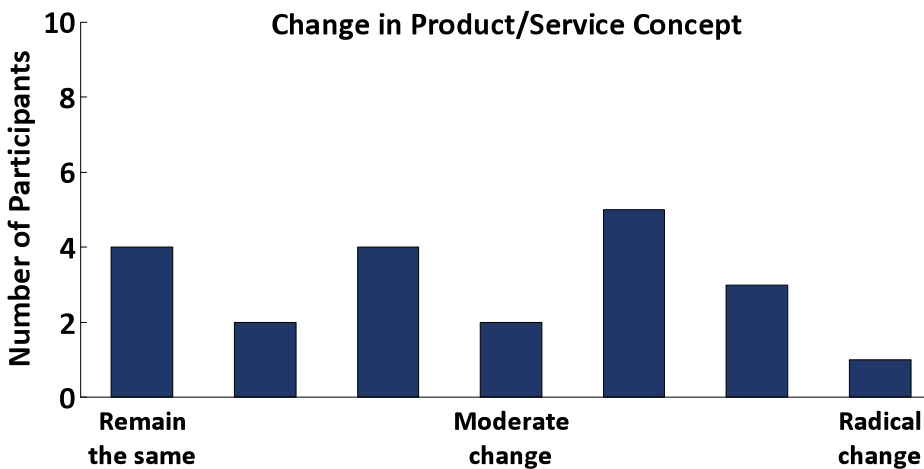
- 65% of respondents indicated that their company made moderate to radical changes to their business model.



How much emphasis is placed on changing the product or customer strategy of your company?
n=25

Findings:

- 60% of respondents indicated that their company placed at least moderate emphasis on altering the product or customer strategy of their business.



How much change to your product or service concept has occurred within your company?
n=21

Findings:

- 52% of respondents indicated that their company made moderate to radical changes to their product or service concept.

NIY Program: Support Initiatives

The support initiatives provided by the NIY Program directly impact companies’ resources and capabilities, and as discussed previously, these improvements to companies’ resources and capabilities in turn lead to indirect impact on companies’ performance, and eventually to long-term impacts in the form of socio-economic benefits. This follows TEN’s approach to measuring innovation impact as described in our Logic Model found in Appendix A.

This section provides a summary of the degree of use of the NIY Program support initiatives.

The following table shows key support initiatives of the NIY Program.

NIY Program Support Initiatives
<ul style="list-style-type: none">• Mentoring by Tekes advisor• Assistance with either public or private investors• Participation in other Tekes programs• Assistance with investor presentations• Contact with business advisors, accelerators, or Board members

Respondents were asked to rate the NIY Program support initiatives in terms of the degree of use. The following lead question was presented to respondents:

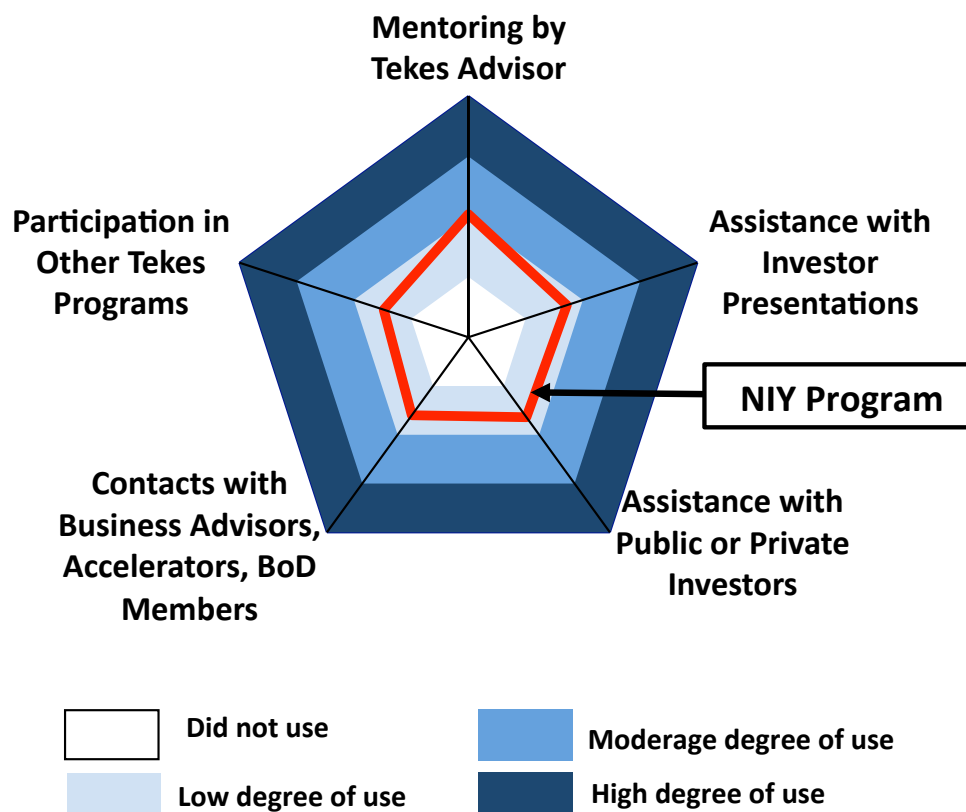
Please assess the degree of use of the following support initiatives, provided by Tekes or other partners, which were facilitated by the NIY Program.

Degree of use can refer to the frequency of use, number of business representatives involved, or the duration of each use event.

For example, 'Low degree of use' can mean the support initiative was used infrequently, few business representatives were involved, or little time was invested in the use of the service.

Details on our standardized question format are provided in Appendix C.

The figure below shows average degree of use responses for the five support initiatives. Reading clockwise, the average degree of use ranges from the low-end of ‘moderate degree of use’ of the Mentoring by Tekes advisor support initiative to the middle of the ‘low degree of use’ range for Participation in other Tekes programs.

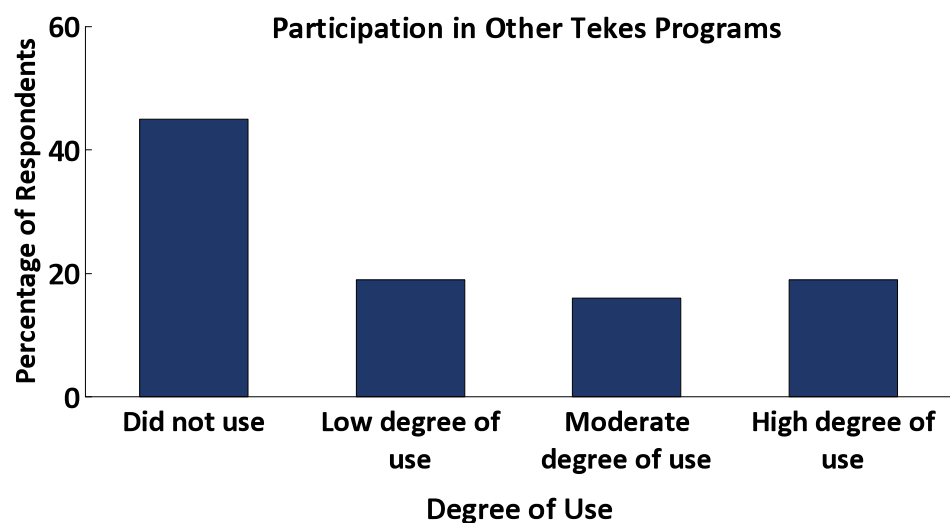
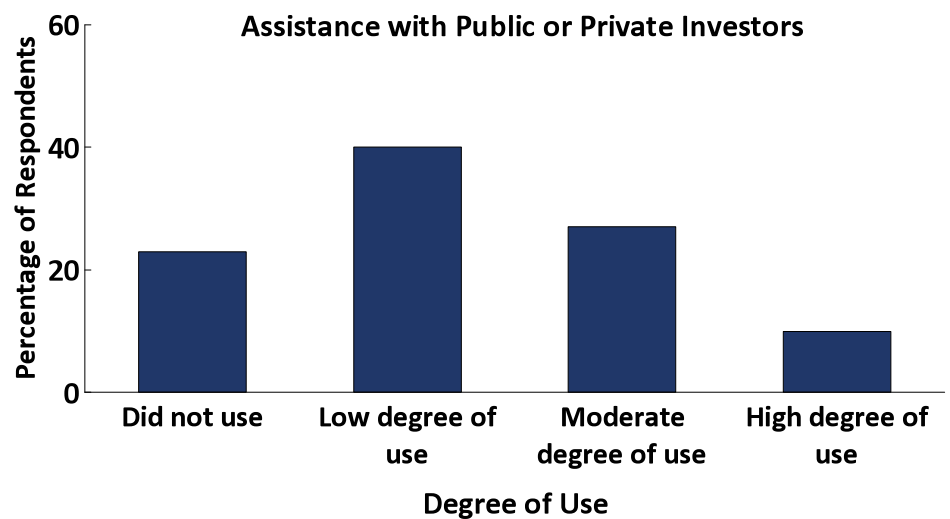
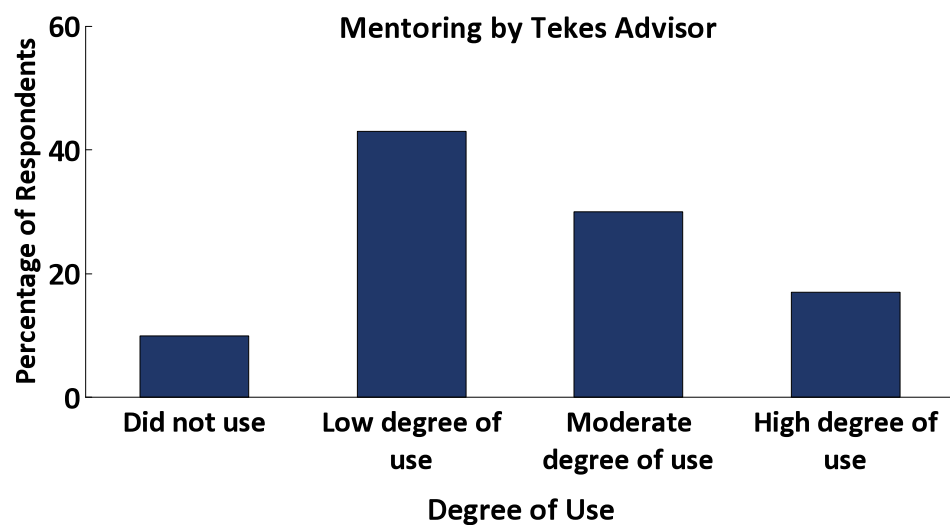


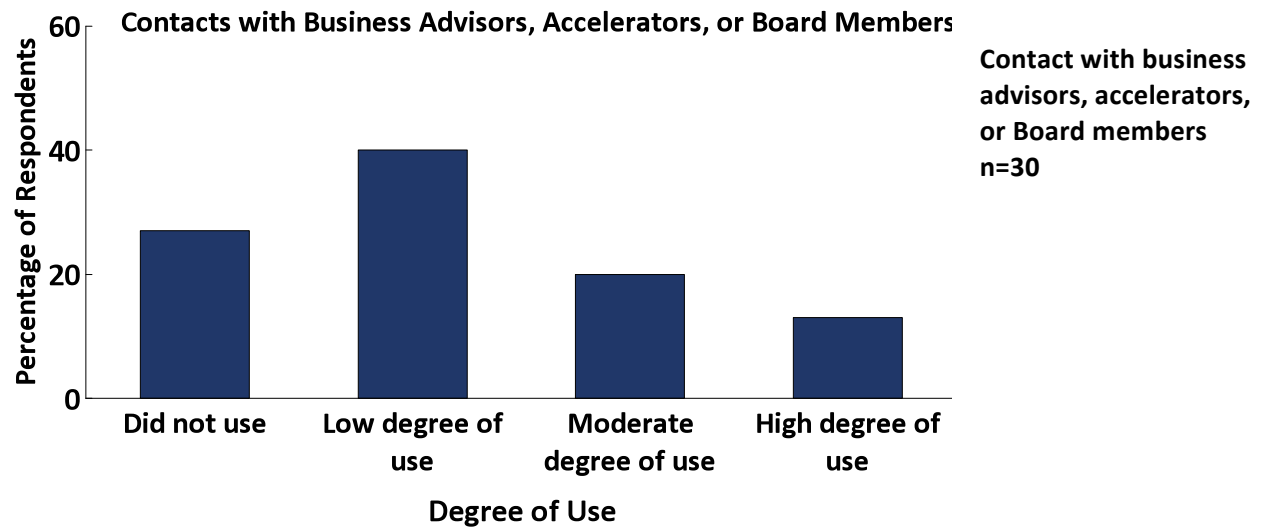
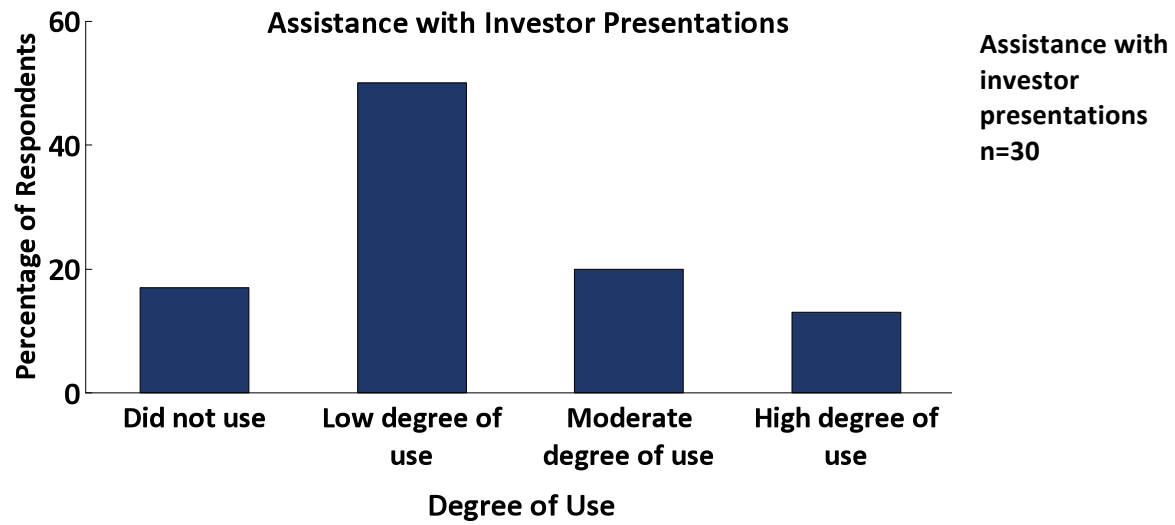
Average Degree of Use of the NIY Program’s Support Initiatives

Respondents reported ‘moderate’ or ‘high’ degree use of the following NIY Program support initiatives:

- Mentoring by Tekes advisor (47% of respondents)
- Assistance with either public or private investors (37%)
- Participation in other Tekes programs (36%)
- Assistance with investor presentations (33%)
- Contact with business advisors, accelerators, or Board members (33%)

The frequency distributions below show responses to the degree of use of the NIY Program support initiatives and the number of responses (n).





Detailed Results on Funding Allocations

In addition to the support initiatives analysed in the foregoing section, the NIY Program provides funding to all participants. Given the mandate of the NIY Program, this funding is viewed as a support initiative for start-up companies in Finland. While all participants in the NIY Program receive funding, the money allocated to each company varies depending on their phase in the NIY Program and potential for international growth. Based on data provided by Tekes, we found that 69% of participants received €500K or more to support the growth of their company.

This section provides a summary of the degree to which the NIY Program participants allocate the funds received from the NIY Program among six key business functions.

The following table shows key business functions to which funds may be allocated.

NIY Program Funding Allocations
<ul style="list-style-type: none">• Strengthen international sales networks; marketing• Strengthen human resources; improve internal processes• Product or service development; scale-up; manufacturing• Concept development• Acquire additional capital• Buy new equipment

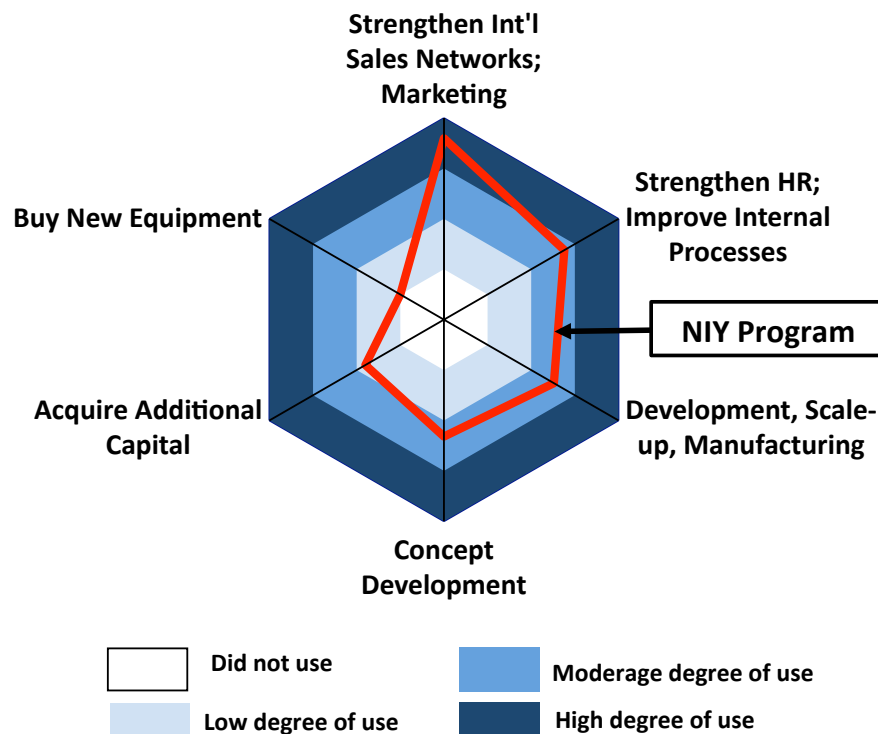
Respondents were asked to rate the different business functions in terms of the degree of use. The following lead question was presented to respondents:

Please identify the degree of use of the funds provided through the NIY Program in the following functions of your company.

Degree of use refers to the amount of money provided by the NIY Program that was spent in the areas listed below.

Details on our standardized question format are provided in Appendix C.

The figure below shows average degree of use responses for the six business functions. Reading clockwise, the average degree of use ranges from the middle of the 'high degree of use' range for the Strengthen international sales networks; marketing, to the low-end of the 'low degree of use' range for Buying new equipment.



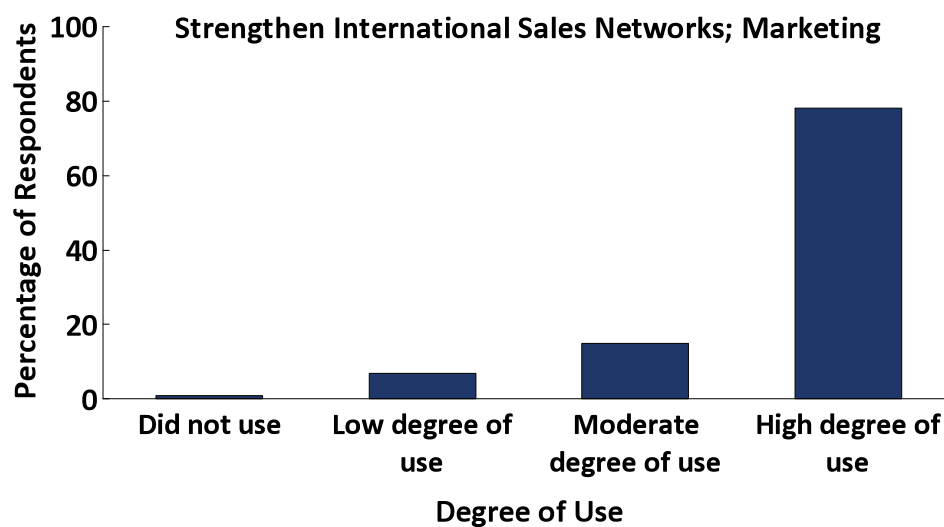
Average Degree of Use of Funding from the NIY Program for Business Functions

Respondents reported 'moderate' or 'high' degree use of the following business functions:

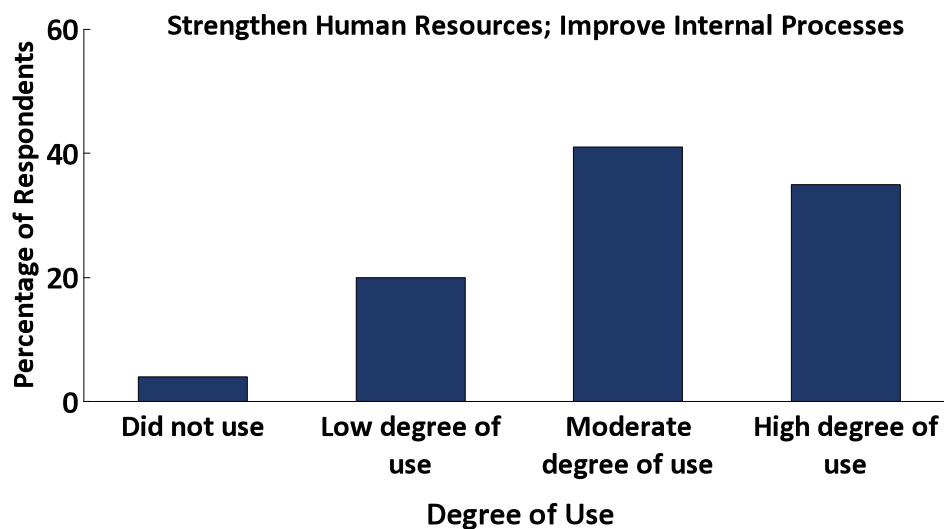
- Strengthen international sales networks; marketing (92% of respondents)
- Strengthen human resources; improve internal processes (76%)
- Product or service development; scale-up; manufacturing (70%)
- Concept development (61%)
- Acquire additional capital (43%)
- Buy new equipment (12%)

We tested for significant differences among the use of the NIY Program funding for the different business functions and found that Strengthening international sales networks and marketing was used to the highest degree when compared to all other business functions (significant at the 99% confidence level).

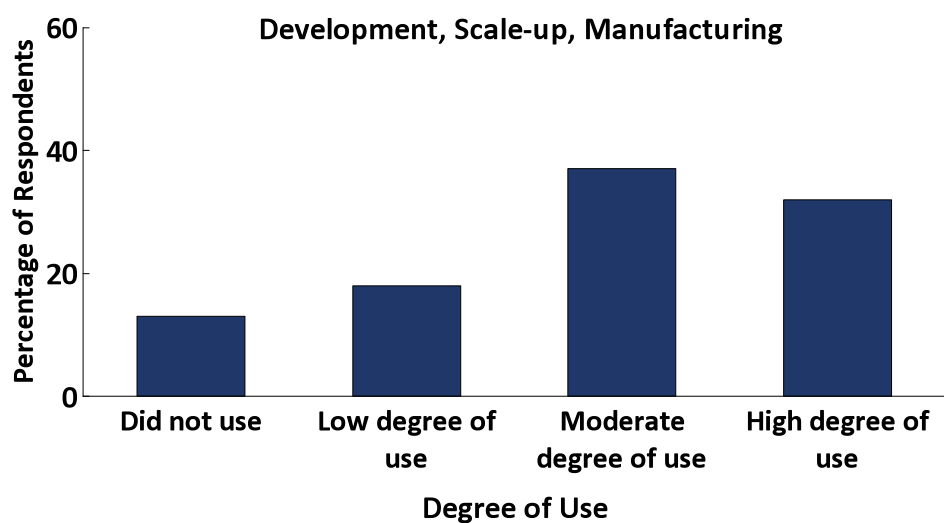
The frequency distributions below show responses to the degree of use of the NIY Program funding support to the different business functions and the number of responses (n).



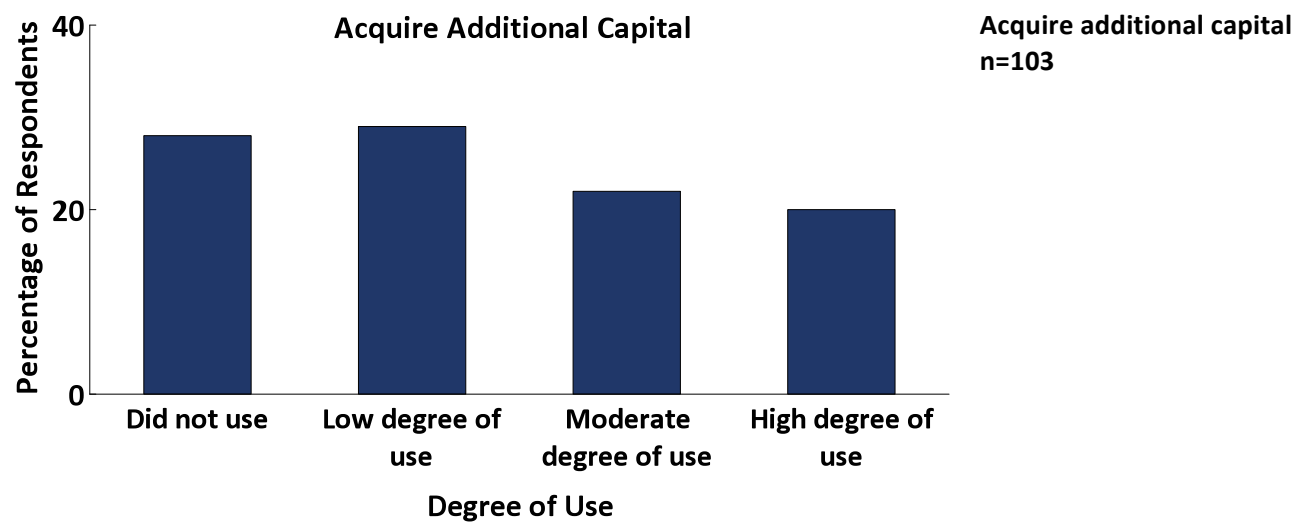
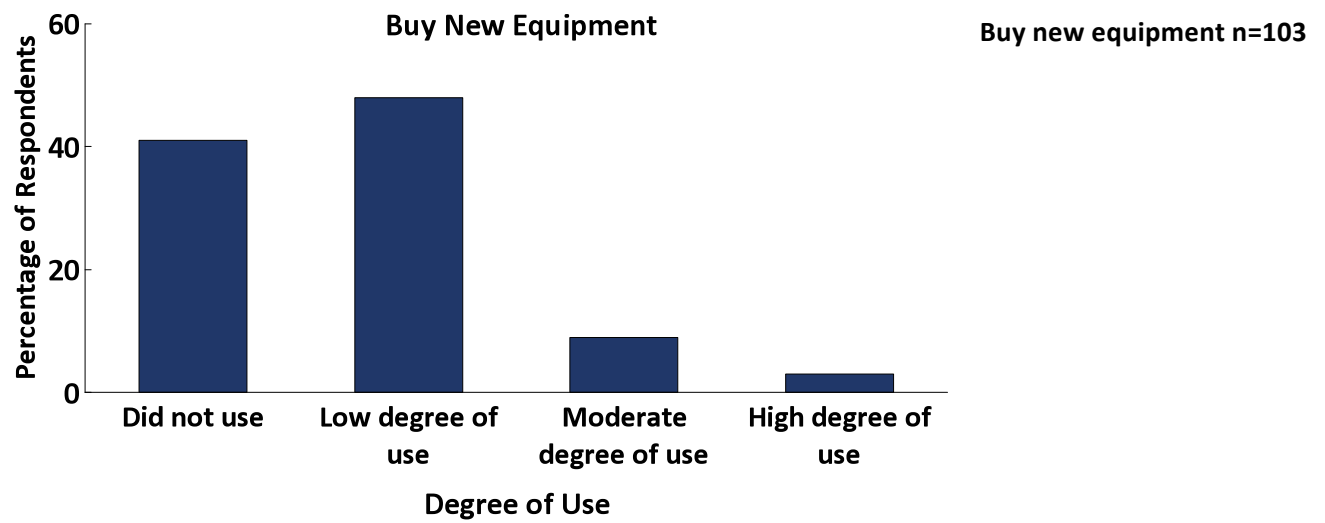
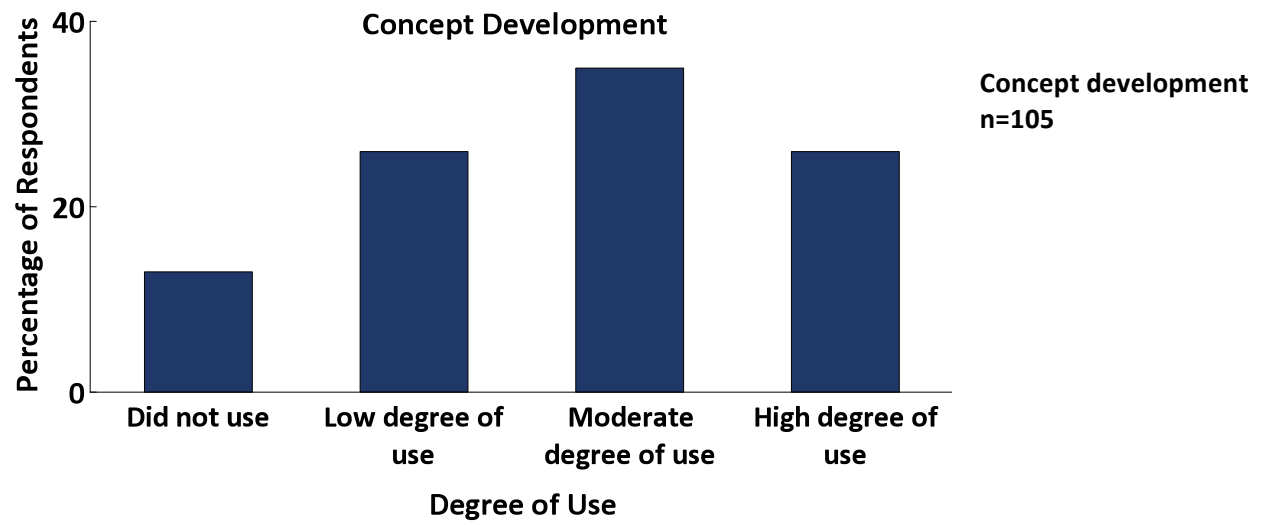
Strengthen international sales networks; marketing
n=103



Strengthen human resources; improve internal processes
n=104



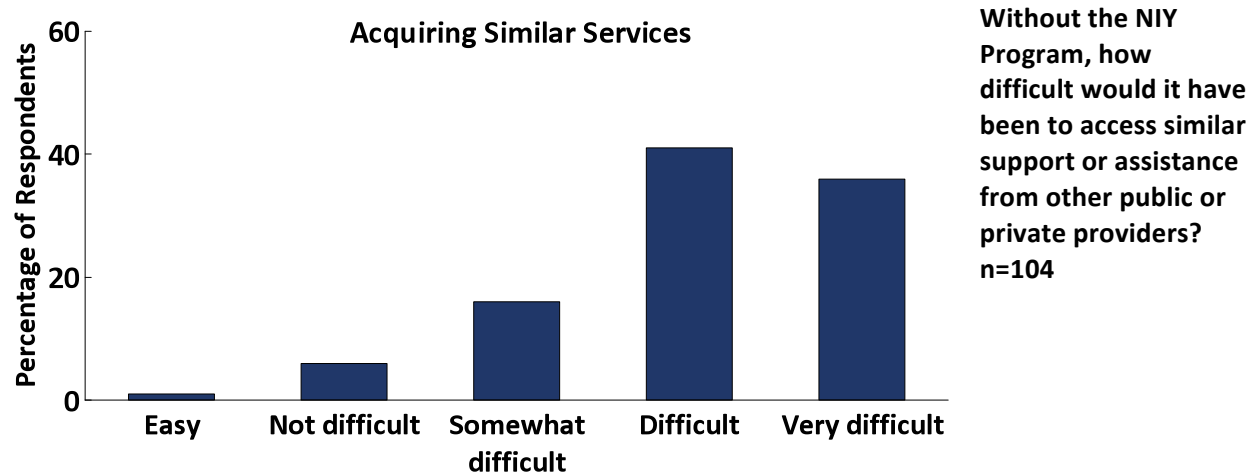
Product or service development; scale-up; manufacturing
n=102



Ease of Access to NIY Program Support Initiatives

All respondents who completed the survey were asked how difficult it would have been to access similar support or assistance from other public or private providers.

The frequency distribution below shows the responses as well as the number of responses ('n').



We find that 93% of the respondents reported that it would be 'somewhat difficult', 'difficult', or 'very difficult' to access similar support or assistance from another provider. This result suggests that the NIY Program has little overlap with the support of other providers in Finland.

Relationships Between NIY Support, Direct Impact on Resources and Capabilities, and Indirect Impact on Company Performance

The foregoing has described the degree to which the NIY Program has had an impact on the companies it serves. In this section we consider the question of *how* the NIY Program has achieved that impact. To do so, we conduct statistical examinations of the relationships between the NIY Program's impact on companies' performance and predictors of that impact. We consider three kinds of predictors: company attributes that we include as control variables, the degree of use of Tekes support initiatives, and the nature and degree of direct impact on companies' resources and capabilities. We find that the NIY Program's indirect impact on companies' performance is significantly predicted by total funding provided and by direct impact on companies' resources and capabilities.

In conducting our analysis, we were mindful of the extensive data that has been collected for the Tekes Growth Evaluation Project (GEP). This includes financial data, patent data, and data from annual surveys of up to 182 items conducted between 2006 and 2012. The GEP data is detailed panel data on company attributes, behaviours, and performance that will allow researchers to investigate a number of questions such as:

- a) What explains differences in venture growth?
- b) What explains differences in venture internationalization?
- c) What explains differences in the likelihood that ventures will participate in Tekes' programs?
- d) How does participation in Tekes' programs impact ventures?

In contrast, TEN's survey is designed to measure the impact the NIY Program has on participating companies, with minimal information on company attributes, behaviours, and performance.

While both the GEP surveys and TEN's survey ask about impact, there are important differences in the nature and delivery of the impact questions, and in the possibilities for analysis:

- 1) The TEN impact questions are based on a theory of how innovation intermediaries effect change. The theory is that programs such as the NIY Program conduct activities (including financing) that have a direct impact on company resources and capabilities, and an indirect impact on company performance. The measures of direct and indirect impact used by TEN are comprehensive, non-overlapping, and consistent across surveys. It is not clear that the GEP survey questions are informed by a theory of change, and how the changes come about.
- 2) When TEN asks about direct impact, it includes with the question examples of direct impact to make the intent of the question clear. The GEP questions are very short and may be subject to alternative interpretations.

- 3) When TEN asks about indirect impact it precedes the question about impact on company performance with a question that asks about the relevant change in company performance. This focuses the mind of the respondent on the specifics of the impact question, thereby reducing bias.
- 4) TEN has conducted repeated tests of its theory of how innovation intermediaries effect change. In these tests it regresses control variables and direct impact variables against indirect impact. Typically it finds that direct impact is the best predictor of indirect impact, as predicted by theory. The evidence of a significant association between direct and indirect impact provides further support for the indirect impact measures and useful information on how indirect impact is achieved.

As a consequence of these differences, our analysis focuses on the impact data collected by TEN. However, we also analyzed relevant GEP data (labeled below as ‘Additional NIY Program impact variables’) to gain further insight into the NIY Program’s direct impact on companies’ resources and capabilities. We would have also analyzed the ‘Impact of Tekes services’ variables from the GEP data, but unfortunately there were only 10 observations (n) for each relevant variable. As a consequence, these variables were not included in the regression analyses.

In the following we describe our measures, provide descriptive statistics, and show the results of linear regressions against indirect impact on companies’ performance.

Control Variables – Company Attributes

We control for six company attributes that may impact companies’ assessment of the impact of the NIY Program on their performance:

- Age: Indicates the company’s age in years in 2013 and has an average value of 5.6 years; there were no companies founded prior to 2003.
- Size: Respondents were asked to indicate the number of employees at their company, on a five-point scale. Respondents were also asked to indicate their company’s annual revenues, on a six-point scale. Responses to these questions were multiplied (mid-point values were used for number of employees and annual revenues) to get an indicator of company size that ranged from a minimum of zero to a maximum of 1.125 billion (greater than €5 million in annual revenues (coded as 7.5 million) and more than 100 employees (coded as 150)). The average value was 75.8 million.
- Growth: Companies that are growing may be inclined to be more generous in their assessment of program impact, so we include growth as a control variable to distinguish this effect from other explanations of impact on company performance. Respondents were asked to indicate the change in employment at their company since its first engagement in the NIY Program, on a five-point scale that ranged from ‘decreased’ to ‘increased by more than 100%’. Respondents were also asked to indicate the change in annual revenues at their company since its first engagement in the NIY Program on six-point scale that ranged from a low of ‘decreased’ to a high of ‘increased by more than 100%’. Responses to these questions were multiplied (mid-point values were used for

change in employment and change in annual revenues) to get an indicator of company growth that ranged from a low of -0.1875 (employment decreased (coded as -0.125) and annual revenue increases of more than 100% (coded as 1.5)) to a high of 2.25 (employment increased by more than 100% (coded as 1.5) and annual revenue increases of more than 100% (coded as 1.5)). The average value was 0.96.

- **Research or Development Expenditures:** Indicates the proportion of companies' expenditures directed towards research or development since first engagement with the NIY Program. Companies that invest in research are expected to have a greater absorptive capacity and therefore to experience greater impact. Respondents were asked to indicate the proportion of companies' expenditures directed towards research or development since their first engagement with the NIY Program on a six-point scale that ranged from a low of 'we do not invest in research or development' (coded as 0), to a high of '90% or more' (coded as .95). The average value was 0.43.
- **Number of employees with a university education:** Indicates the number of employees with a university degree working in the company. Companies that hire employees with university education are also expected to have a greater absorptive capacity and therefore to experience greater impact. Respondents were asked to indicate the number of employees in their company with university degrees on a four-point scale that ranged from a low of 'less than 10' (coded as 5), to a high of 'more than 50' (coded as 75). The average value was 17.1.

Measures of the Degree of Use of NIY Support Initiatives, NIY Funding, and Impact

To reduce complexity and increase understanding, factor analysis was used to consolidate measures of the use of NIY Program funds, the NIY Program's direct and indirect impact, and additional NIY Program impact variables from previous Tekes surveys. As well, independent variables were computed to consolidate measures of the degree of use of support initiatives provided by Tekes or other partners, facilitated by the NIY Program.

As shown in the table below, six measures of the degree of use of NIY Program support initiatives were reduced to two degree of use factors: NIY total funding, and degree of Non-financial NIY support. All companies received funding through participation in the NIY Program, and therefore, the Non-financial NIY support factor is associated with those companies that also received non-financial support from Tekes or other partners.

To create the Non-financial support factor, respondents were asked to indicate the degree of use of the non-financial support initiatives (see table below) provided by Tekes or other partners, facilitated through the NIY Program, on a four-point scale, which ranged from a low of 'did not use' (coded as 0) to a high of 'high degree of use' (coded as 3). Companies that only received financial support were also coded as zero. To get an indicator of the degree of use of these NIY Program support initiatives, responses to each answer code for all support initiatives were added together, resulting in the Non-financial NIY support factor.

Twelve measures of direct impact on resources and capabilities were reduced to five direct impact factors using factor analysis (see table below). The twelve measures of direct impact on resources and capabilities includes six ‘Degree of use of funds’ measures, along with the other direct impact measures, both described earlier in this report. Degree of use of funds refers to the amount of money provided by the NIY Program that was spent to improve the resources and capabilities of the companies in particular areas, and therefore, these measures were included with the six direct impact measures for the purposes of conducting the factor analysis. The five direct impact factors that resulted have a high coefficient of reliability as indicated by the Cronbach’s alphas.¹² It is noteworthy that the ‘Degree of use of funds’ measures fell into logical groups, together with the other direct impact measures used in our analysis, as a consequence of the factor analysis.

Further, four additional NIY Program impact variables from previous Tekes surveys described earlier in this report were reduced to two additional NIY Program impact factors, and the seven measures of impact on company performance were reduced to two indirect impact factors through factor analyses. All composite factors of direct impact, additional NIY Program impact, and indirect impact are reliable as indicated by the Cronbach’s alphas.

Independent Variables		
Type of Measures	Measures	Factors
Degree of use of NIY Program support initiatives	• Total NIY funding received (€)	NIY total funding (€)
	• Mentoring by Tekes advisor	Non-financial NIY support (sum of all measures of degree of use of services identified on the left)
	• Participating in other Tekes programs	
	• Assistance with investor presentations	
	• Contacts with public or private investors	
	• Contacts with business advisors, accelerators, or BOD members	

¹² Cronbach’s alpha is a measure of internal consistency. It measures how closely related a set of items are as a group. Cronbach’s alpha is a coefficient of reliability (or consistency); a reliability coefficient of .70 to .79 is considered “acceptable”, .80 to .89 is considered “good”, and .90 or greater is considered “excellent”.

Independent Variables (continued)

Type of Measures	Measures	Factors
Direct impact on resources and capabilities	<ul style="list-style-type: none"> Strategic knowledge Business planning Linkages – networks and NIY participants Selling into new markets Buy new equipment * Concept development* Product or service development; scale up; manufacturing * Strengthen HR; improve internal processes* Leadership or governance Acquire additional capital* Raising capital Strengthening of international sales networks; marketing* 	<ul style="list-style-type: none"> Strategic business knowledge and linkages (Cronbach's Alpha = .81) Equipment and development (Cronbach's Alpha = .79) Internal processes and leadership (Cronbach's Alpha = .81) Financing capabilities (Cronbach's Alpha = .88) International marketing capabilities (Cronbach's Alpha = .83)
Additional NIY Program impact variables (from previous Tekes surveys)	<ul style="list-style-type: none"> Changes in product/service concept Changes to business model Changes to internationalization strategy Changes to growth objectives 	<ul style="list-style-type: none"> Business model and product concepts (Cronbach's Alpha = .94) Growth strategies (Cronbach's Alpha = .95)
Impact on companies' market performance	<ul style="list-style-type: none"> Time to market New international customers Change in employment Change in annual revenues Export Sales Financing received from private sources Financing received from public sources 	<ul style="list-style-type: none"> Indirect growth impact (Cronbach's Alpha = .89) Indirect financing impact (Cronbach's Alpha = .84)

*Denotes how companies used funds received from the NIY Program

Descriptive Statistics

The following table provides, for each variable, correlations with other variables, the number of observations (N), its mean, standard deviation, minimum value, and maximum value. We find that:

- Older companies were more likely to be larger in size (as indicated by number of employees and annual revenues) than younger companies (significant at the 99% confidence level).
- Younger companies were more likely to have invested a larger proportion of company expenditures towards research or development than older companies (significant at the 95% confidence level).
- Larger companies were more likely to be growing (as indicated by change in employment and change in annual revenues) than smaller companies (significant at the 99% confidence level).
- Older, larger, growing companies were more likely to have employees with university degrees than younger, smaller companies that are not growing (significant at the 99% confidence level).
- Older, larger, growing companies, that employ people with university degrees were more likely to have received more total NIY funding than younger, smaller companies, that are not growing, and that have fewer employees with university degrees (significant at the 95% confidence level for all except size, which is significant at the 99% confidence level).
- The direct impact on improvements to companies' Strategic business knowledge and linkages was found to be greater for companies that received both financial and non-financial NIY support, compared to companies that only received financial support (significant at the 95% confidence level).
- The direct impact on improvements to companies' Internal processes and leadership capabilities was found to be greater for younger companies than older companies (significant at the 95% confidence level).
- The direct impact on improvements to companies' Financing capabilities was found to be greater for younger companies, companies that invest a larger proportion of company expenditures in research or development, and for companies that received both financial and non-financial NIY support (significant at the 95% confidence level).
- The direct impact on changes to companies' Growth strategies after completing the NIY Program was found to be greater for companies that are growing compared to companies that are not growing (significant at the 95% confidence level).
- The indirect growth impact was greater for growing companies, and for companies that received more total NIY funding, compared to companies that are not growing, and that received less total NIY funding (significant at the 99% confidence level).
- The indirect growth impact was greater for companies that reported greater direct impact on improvements to Strategic business knowledge and linkages, and International marketing capabilities (significant at the 95% confidence level).

- The indirect financing impact was greater for companies that received both financial and non-financial NIY support compared to companies that only received financial support (significant at the 95% confidence level).
- The indirect financing impact was greater for companies that reported greater direct impact on improvements to Financing capabilities (significant at the 99% confidence level).

Descriptive Statistics and Correlations

	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.
Control variables																
1. Age																
2. Size	.29**															
3. Growth	.03	.39**														
4. Research Expenditures	-.25*	.00	.10													
5. Employees with university education	.27**	.64**	.26**	.13												
Degree of use variables																
6. NIY total funding	.26*	.28**	.26*	.13	.21*											
7. Non-financial NIY support	-.25	.23	.26	.00	-.23	.17										
Direct impact variables																
8. Strategic business knowledge and linkages	.09	.05	.05	-.05	-.04	-.06	.44*									
9. Equipment and development	.15	.03	-.00	-.07	-.04	.11	.15	.00								
10. Internal processes and leadership	-.22*	-.08	.05	.11	-.04	.15	.34	.00	.00							
11. Financing capabilities	-.22*	-.19	-.04	.25*	-.11	-.06	.44*	.00	.00	.00						
12. International marketing	.02	.18	.08	.02	.12	.07	.16	.00	.00	.00	.00					
Additional NIY impact variables																
13. Business model and product concepts	-.04	-.07	-.07	.11	.29	-.26	.03	.38	-.07	.21	.38	-.18				
14. Growth strategies	-.00	.05	.53*	-.14	.18	-.13	.63	.19	.01	-.17	-.08	.00	.00			
Indirect impact variables																
15. Indirect growth impact	.16	.16	.36**	-.09	.00	.26**	.15	.24*	-.07	.09	-.03	.23*	-.06	.41		
16. Indirect financing impact	-.16	-.13	-.05	.19	-.17	.06	.46*	.13	.08	.07	.63**	.03	.18	-.01	.00	
N	101	104	104	104	104	104	33	95	95	95	95	95	20	20	103	103
Mean	5.6	75.8M	.96	.43	17.1	661K	5.82	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Standard deviation	1.9	190M	.88	.24	20.5	315K	3.61	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Minimum	1.00	0.00	-.19	.05	5.0	233K	0.00	-2.67	-2.72	-2.36	-1.59	-3.19	-1.47	-2.22	-2.86	-1.79
Maximum	10.0	1.13B	2.25	.95	75.0	1.25M	13.0	2.78	2.45	2.31	2.32	1.79	1.49	.94	1.41	2.59

* = $p < .05$, ** = $p < .01$

Model Results

As indicated by TEN's logic model for innovation intermediaries, our theory is that impact on companies' performance is predicted by direct impact on their resources and capabilities. Linear regression was used to test for a significant relationship between indirect impact on company performance and direct impact on resources and capabilities, where our measures are the composite impact measures created by the factor analysis shown above.¹³

Models 1, 2, and 3 shown below regress control variables, degree of use factors, and direct impact on resources and capabilities against indirect growth impact.

Model 1, which includes only the company attribute control variables, explains 14% of the variance (Adjusted R^2) in the dependent variable, indirect growth impact. Of the control variables, company growth is significant in Model 1, indicating that growing companies are more likely to attribute the NIY Program with impact on company performance than companies that are not growing (significant at the 99% confidence level).

Model 2, which includes the degree of use factors, explains 19% of the variance in the dependent variable, indirect growth impact. Again, company growth is significant in Model 2, indicating that growing companies are more likely to attribute the NIY Program with impact on this measure of company performance than companies that are not growing (significant at the 99% confidence level). Further, employees with university education is marginally significant, and negative, in Model 2, indicating that companies that have fewer employees with university degrees are more likely to attribute the NIY Program with impact on company performance than companies that have more employees with university degrees (significant at the 90% confidence level). Lastly, NIY total funding is marginally significant in Model 2, indicating that companies that have received more total funding through participation in the NIY Program are more likely to attribute the NIY Program with impact on company performance than companies that received less total funding (significant at the 90% confidence level).

Model 3, which includes the direct impact on resources and capabilities factors, is an improvement over Models 1 and 2 as it explains 27% of the variance in the dependent variable, indirect growth impact. Model 3 shows that the direct impact on improvements to Strategic business knowledge and linkages, and International marketing capabilities are significant predictors of this measure of impact on company performance (significant at the 95%

¹³ When doing linear regression analyses, the data-to-independent variables ratio should ideally be 20:1; that is 20 observations (n) for every independent variable in the model. The lowest ratio used should be 5:1 (i.e., 5 observations (n) for every independent variable in the model). Every effort was used to maintain at least a 5:1 ratio, and due to the limited number of data points available for the Non-financial NIY support variable, as well as the Additional NIY Program variables (Business model and product concepts, and Growth strategies factors), these variables were not included in the regression analyses. Testing was done to determine if the Additional NIY Program variables had significant impact on company performance. No significant findings were determined from the regression analysis on indirect impact on company performance. Therefore, due to the low sample size for these variables and the fact that no significant findings were determined from the regression analysis on indirect impact on company performance, these variables were not used in the regression analyses that follow.

confidence level). Again, company growth is significant in Model 3, indicating that growing companies are more likely to attribute the NIY Program with impact on company performance than companies that are not growing (significant at the 95% confidence level). NIY total funding is also a significant predictor of company performance. Companies that have received more total funding through participation in the NIY Program are more likely to attribute the NIY Program with impact on company performance than companies that received less total funding (significant at the 99% confidence level).

Findings:

NIY total funding provided is the best predictor of indirect growth impact.

With respect to direct impacts of the NIY Program, improvements to Strategic business knowledge and linkages, and improvements to International marketing capabilities are also strong predictors of indirect growth impact. Further, company growth also predicts indirect growth impact.

Linear Regressions Against Indirect Growth Impact

	Model 1	Model 2	Model 3
	Control variables	Degree of use	Direct impact
Constant	-1.35	-1.69 α	-1.96 α
Age	1.51	1.13	.84
Size	.58	.75	.49
Growth	3.58**	3.57**	2.60*
Research expenditures	-.97	-1.38	-1.13
Employees with university education	-1.60	-1.70 α	-1.60
NIY total funding		1.76 α	2.75**
Non-financial NIY support		.09	.02
Strategic business knowledge and linkages			2.39*
Equipment and development			-1.22
Internal processes and leadership			.46
Financing capabilities			.47
International marketing capabilities			2.21*
Model characteristics			
N	100	96	88
F	4.08** (5 dof)	4.14** (7 dof)	3.67*** (11 dof)
Adjusted R ²	.14	.19	.27

T values are reported; dof = Degrees of freedom;

α = $p < .1$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$

Models 4, 5, and 6 shown below regress control variables, degree of use factors, and direct impact on resources and capabilities against indirect financing impact.

Model 4, which includes only the company attribute control variables, explains just 3% of the variance (Adjusted R^2) in the dependent variable, indirect financing impact. Of the control variables, research expenditures is marginally significant in Model 4, indicating that companies that invest a larger proportion of expenditures in research or development are more likely to attribute the NIY Program with indirect financing impact, than companies that invest a smaller proportion of expenditures on research or development (significant at the 90% confidence level).

Model 5, which includes the degree of use factors, is an improvement over Model 4, as it explains 16% of the variance in the dependent variable, indirect financing impact. Again, research expenditures is significant in Model 5, indicating that companies that invest a larger proportion of expenditures in research or development are more likely to attribute the NIY Program with impact on this measure of company performance than companies that invest a smaller proportion of expenditures in research or development (significant at the 95% confidence level). Also, Non-financial NIY support is significant in Model 5, indicating that companies that received both financial and non-financial NIY support are more likely to attribute the NIY Program with impact on company performance than companies that only received financial support (significant at the 99% confidence level).

Model 6, which includes the direct impact on resources and capabilities factors, is a significant improvement over Models 4 and 5 as it explains 41% of the variance in the dependent variable, indirect financing impact. Model 6 shows that the direct impact on companies' resources and capabilities is the strongest predictor of indirect financing impact. In particular, it is the direct impact on improvements to Financing capabilities that is a significant predictor of this measure of impact on company performance (significant at the 99.9% confidence level). Again, research expenditures is marginally significant in Model 6, indicating that companies that invest a larger proportion of expenditures in research or development are more likely to attribute the NIY Program with impact on company performance than companies that invest a smaller proportion of expenditures in research or development (significant at the 90% confidence level). Also, employees with university education is marginally significant, and negative, in Model 6, indicating that companies that have fewer employees with university degrees are more likely to attribute the NIY Program with impact on company performance than companies that have more employees with university degrees (significant at the 90% confidence level).

Findings:

The NIY Program's direct impact on the Financing capabilities of companies is the best predictor of its indirect impact on companies' ability to raise additional capital from private and public sources (indirect financing impact).

Research expenditures and those companies with fewer employees with university education also predicts indirect impacts on the performance of participant companies' ability to raise additional capital from private and public sources. This finding, while somewhat weak, is inconsistent with our hypothesis set out earlier that greater absorptive capacity, as measured by the number of employees with university degrees, would predict greater impact. In contrast, it appears that companies with fewer university graduates may rely upon Tekes support to a greater degree and therefore attribute greater impact.

Linear Regressions Against Indirect Financing Impact

	Model 4 Control variables	Model 5 Degree of use	Model 6 Direct impact
Constant	.01	-.89	-.05
Age	-.55	-.46	-1.32
Size	.11	.16	.83
Growth	-.30	-1.54	-.50
Research expenditures	1.87 α	2.41*	1.78 α
Employees with university education	-1.49	-1.65	-1.88 α
NIY total funding		1.17	1.25
Non-financial NIY support		3.44**	.53
Strategic business knowledge and linkages			1.45
Equipment and development			.90
Internal processes and leadership			.20
Financing capabilities			5.69***
International marketing capabilities			.56
Model characteristics			
N	100	96	88
F	1.71 (5 dof)	3.64** (7 dof)	6.07*** (12 dof)
Adjusted R ²	.03	.16	.41

T values are reported; dof = Degrees of freedom;

α = $p < .1$, * = $p < .05$, ** = $p < .01$, *** = $p < .001$

Model 3 shows that money provided by the NIY Program is the best predictor of indirect growth impact. However, direct impact on companies' resources and capabilities is also a significant predictor of this measure of impact on company performance. In particular, improvements to Strategic business knowledge and linkages, and improvements to International marketing capabilities are significant predictors of indirect growth impact. Company growth also predicts indirect growth impact.

Model 6 shows that the NIY Program's direct impact on companies' resources and capabilities is the best predictor of indirect financing impact. In particular, it is improvements to Financing capabilities that is the best predictor of this measure of impact on company performance. Research expenditures and fewer employees with university education also predict indirect financing impact.

Overall, it is the combination of direct impacts on companies' resources and capabilities and the money the NIY Program provides that results in impact on the performance of companies that participate in the NIY Program.

NIY Program: An Analysis of its Economic Impact

Introduction

Governments and other stakeholders want to know if their investments in innovation are yielding economic and social returns. In many cases the returns of greatest interest are contributions to Gross Domestic Product (GDP) and high quality sustainable jobs. However, in most cases it is difficult to obtain evidence of the impact of a particular investment on GDP and jobs, because the impact of a particular investment is likely to be small and therefore difficult to detect in the available data. The NIY Program is a case in point: between 2008 and 2012 Tekes has provided approximately €102.7 million in funding to the NIY Program. Given only secondary data on company revenues and employment, it would be extremely difficult to tease out the impact of the NIY Program.

As a consequence of the difficulties associated with using secondary data, analysts have employed alternative approaches. Some have abandoned the attempt to analyze the impact of a program, and have instead reported on the total economic footprint of a program, that is, the total revenues and total employment of the companies served by the program. But there is little value in this metric, as the companies involved may have had the same revenues and employment had they not participated in the program. Another approach is to estimate the likely impact of an investment using data on the size of the investment and the findings of past studies on the impact of similar investments. But the merit of this approach is compromised by the fact that it assumes that high performing investments will have the same impact as low performing investments.

The present analysis of the total economic impact of the NIY Program on company revenues and employment is based on primary data on the impact of the program on companies served. This allows us to determine the changes in company revenues and employment that are attributable to the NIY Program. One hundred and fifty-one companies that engaged in the NIY Program were invited to respond to our survey. Of these, 108 companies responded providing information on the impact the NIY Program had on their company's revenues and employment. This data constitutes estimates of the impact of the NIY Program, as judged by company CEOs or, in the case of large companies, the manager responsible for the unit in question.

Our findings show that to date, for the 108 companies that participated in the impact assessment survey, the NIY Program has contributed a total of approximately €99.1 million to companies' revenues, and 1,172 jobs created.

Our findings show that to date, for the 108 companies that participated in the impact assessment survey, the NIY Program has contributed a total of approximately €99.1 million to companies' revenues and 1,172 jobs created, explaining 57.8% of the total present revenues earned by companies, and 52% of the total present employment of the companies responding to the survey. Later in this section, we explain how we derived these estimates and the alternative estimates cited below.

These are extremely conservative estimates for two reasons. First, they assume no impact on companies that did not respond to the survey. One hundred and eight out of 151 companies (71.5%) that participated in the NIY Program, and that were invited to complete our survey, responded. We assumed no impact on non-respondents. If we had assumed that the impact for non-respondents was the average of the impact for respondents, then the total impact on revenues would have been approximately €138.6 million and the total contribution to jobs created would have been approximately 1,646. In the interest of remaining conservative, we have chosen not to extrapolate the total impact on revenues and jobs created for all companies that participated in the NIY Program since 2008.

Further, many analysts use multipliers to account for spillover effects on firms in other industries and the effects of increased downstream purchases. In some cases they also include program expenditures as a contribution to GDP. However, economists differ on the use of multipliers (Economist, 2009), and recent research shows that multipliers vary according to many factors, including the business cycle (Auerback & Gorodnichenko, 2012). Furthermore, the use of multipliers makes it harder for non-specialists to interpret analyses of impact. For these reasons, we report only direct impact.

In the next subsection we present a brief overview of The Evidence Network's approach for estimating economic impact, and in the subsection that follows we present the step-by-step calculation of the economic impact of the NIY Program on the 108 companies that responded to our impact assessment survey. We then present the results of our calculation of the economic impact of the NIY Program and the results of alternative calculations.

The Evidence Network's Approach for Estimating Economic Impact

The Evidence Network's approach for estimating economic impact leverages the knowledge of those best able to judge the impact of an innovation intervention on their company: the company's CEO, or, in the case of a large company, the manager responsible for the unit in question. Company executives have knowledge of the nature of the intervention, and the degree to which it affected company performance. As such, they are able to distinguish between effects on company performance caused by the intervention, and those caused by other factors, either internal or external.

Some may question the degree to which a company executive is able or willing to make an unbiased assessment of impact. Some fear that executives will overstate the impact of an intervention with a view to ensuring continued funding for the intervention, while others fear that executives will understate the impact of an intervention to avoid sharing credit for success. TEN takes three steps to address these concerns. First we refrain from asking general questions such as “to what degree did program X impact your company”? Instead we ask specific questions such as “to what degree did program X impact the change in your company’s annual revenues”? Research shows that specific concrete questions elicit less biased responses than general interpretative questions. Second, we prepare the respondent for the task of judging impact on performance by preceding the impact questions with questions regarding change in performance. So the question on the impact on change in company revenues is preceded by a question that asks about the change in annual revenues since first engagement in the NIY Program. Again, research shows that focusing the respondent’s mind on the issue reduces bias. Finally, we minimize retrospective bias by conducting our surveys soon after the intervention, in some cases less than a year later.

As shown in the first equation below, our estimate of the economic impact on companies’ revenues is the sum over all companies of the impact on the revenues of each participating company that responds to our survey. The impact on the revenues of each responding company is the product of annual revenues, percentage change in annual revenues, and the impact of the NIY Program on change in annual revenues. Similarly, as shown in the second equation below, our estimate of the total impact on employment is the sum over all companies of the impact on each participating company. The impact on employment of each responding company is the product of the number of employees, percentage change in employment, and the impact of the NIY Program on change in employment.

$$\text{Total impact on companies' revenues} = \sum (\text{Annual revenues (€)} * \text{Change in annual revenues (\%)} * \text{Impact on change in annual revenues (\%)})$$

$$\text{Total impact on employment} = \sum (\text{Employees (number)} * \text{Change in employment (\%)} * \text{Impact on change in employment (\%)})$$

Estimating the Economic Impact of the NIY Program

Data Coding

We asked survey respondents about their annual revenues, change in annual revenues since first engagement in the NIY Program, and the impact of the NIY Program on changes in annual revenues. Similarly, we asked them about their employment levels, change in employment levels since their first engagement in the NIY Program, and the impact of the NIY Program on change in employment levels (please see Appendix C for example questions).

The table below shows the response range of each question, the value we assign to each range (usually the midpoint of the range), and the number of respondents (observations) associated with each value.

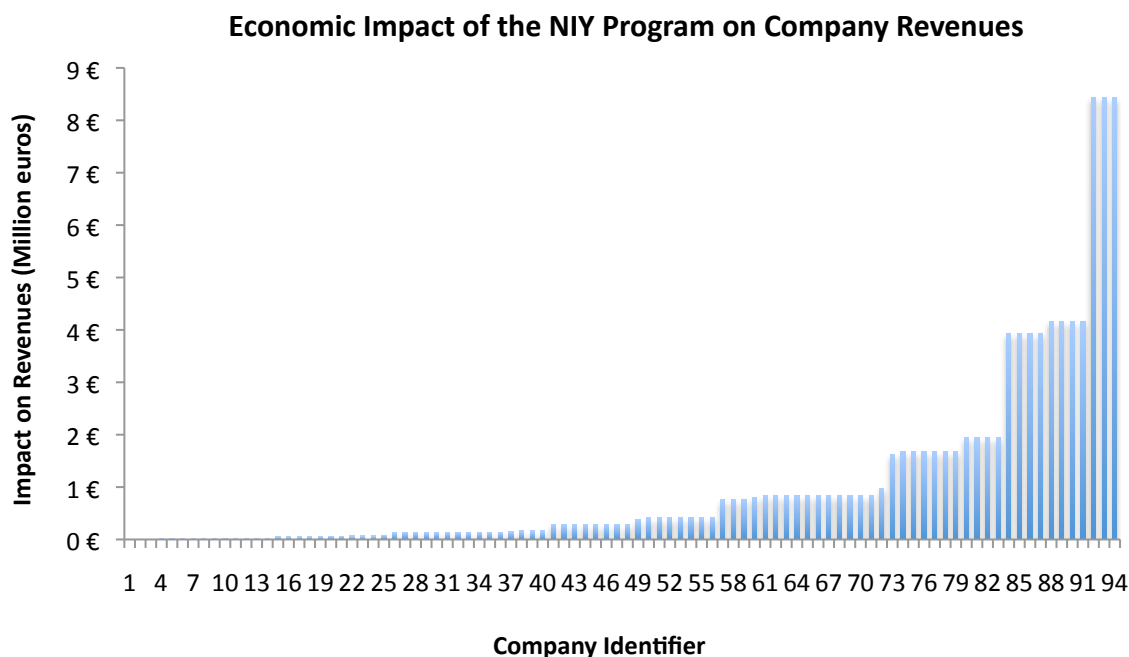
Variable	Response Ranges	Value	# Observations
Annual revenues	Pre-revenue	€0	2
	< €500K	€250K	41
	€500K-1 million	€750K	19
	€1-2 million	€1.5 million	18
	€2-5 million	€3.5 million	15
	> €5 million	€7.5 million	9
Change in annual revenues	Decreased	-.05	3
	No change	0	4
	Little change	.05	5
	Increased 10-49%	.295	14
	Increased 50-99%	.745	15
	Increased by 100% or more	1.5	63
Impact on change in annual revenues	Negative impact	-.025	1
	No impact	0	7
	<5%	.025	5
	Between 5-24%	.145	19
	Between 25-49%	.37	38
	Between 50-100%	.75	34

Variable	Response Ranges	Value	# Observations
Number of employees	Less than 10	5	30
	Between 10-19	14.5	18
	Between 20-49	34.5	9
	Between 50-100	75	2
	More than 100	150	
Change in employment	Decreased	-.125	4
	No change	0	6
	Increased <25%	.125	14
	Increased 25-100%	.625	45
	Increased by 100% or more	1.5	35
Impact on change in employment	Negative impact	-.025	0
	Increased <5%	.025	7
	Between 5-24%	.145	24
	Between 25-49%	.37	30
	Between 50-100%	.75	43

Economic Impact of the NIY Program

As stated above, our estimate of the economic impact on companies' revenues is the sum of the impact on the revenues of each participating company that responds to our survey. The impact on the revenues of each respondent's company is shown in the figure below, and is the product of annual revenues, change in annual revenues, and the impact of the NIY Program on change in annual revenues.

The total impact on revenues reported by all 108 companies that responded to the survey is €99.1 million. Ninety-four of the 108 companies report a positive impact on revenues, 22 companies report an impact that exceeds €1 million, and three companies report an impact that exceeds €8.4 million. The mean impact is €918K, the median impact is €222K, the minimum impact is -€28K, and the maximum impact is €8.4 million. The mean impact on the 94 companies that report a positive impact is €1.1 million.



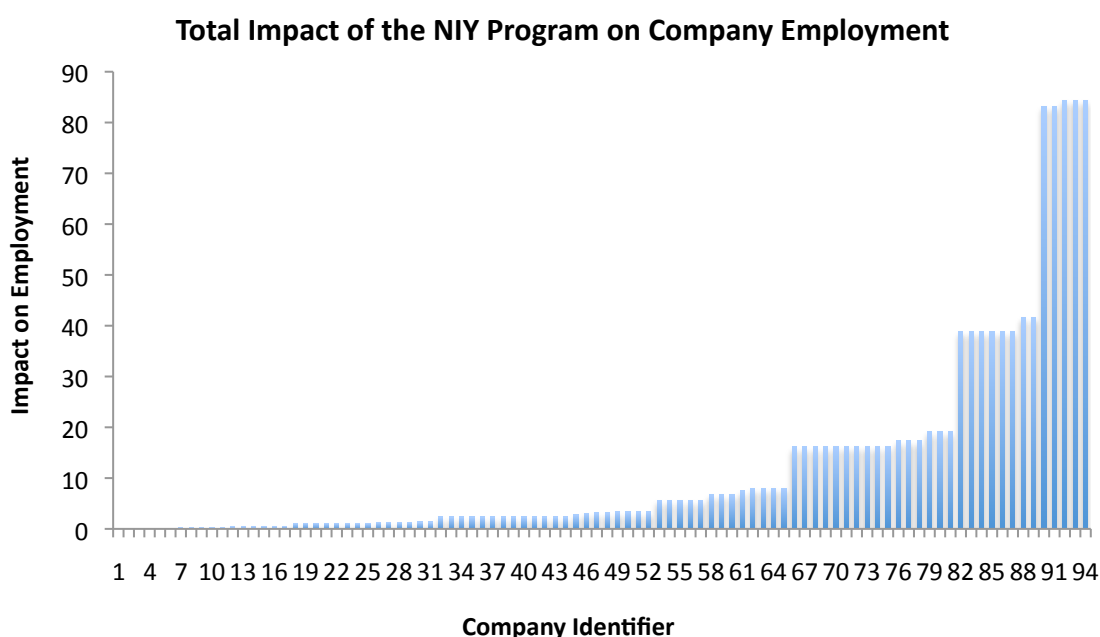
We also conducted a sensitivity analysis in order to show the upper and lower estimates of the total impact on revenues attributed to the NIY Program. Sixty-three out of the 108 companies reported an increase in revenues of 100% or more. In the above analysis we assigned a value of 1.5 for the change in annual revenues of 100% or more. Here we assign a value of 1.0 (representing an increase in annual revenues of 100%) and 2.0 (representing an increase in annual revenues of 200%). Again, the impact on the revenues of each responding company is the product of annual revenues, change in annual revenues, and the impact of the NIY Program on change in annual revenues.

The lower estimate of the total impact on revenues reported by all 108 companies that responded to the survey is €67.7 million, assuming each of the 63 companies that reported an increase in annual revenues of 100% or more experienced a 100% increase. The upper estimate of the total impact on revenues reported by all 108 companies that responded to the survey is €130.5 million, assuming each of the 63 companies that reported an increase in annual revenues of 100% or more experience a 200% increase.

The above has shown how different assumptions affect the estimate of total impact on company revenues. Our €99.1 million estimate of the total aggregate impact of the NIY Program relies on few assumptions, is consistent with assigning values based on the midpoint of changes in annual revenues, and can be directly traced to the reports of company executives of the impact of the NIY Program on their company revenues.

Similarly, as stated above, our estimate of the total impact on employment is the sum of the impact on the employment of each participating company. The impact on employment levels of each responding company is shown in the figure below, and is the product of the number of employees, change in employment, and the impact of the NIY Program on change in employment.

The total impact on employment reported by all 108 companies that responded to the survey is 1,172 jobs. Ninety-four of the 108 companies that responded to the survey report a positive impact on employment in their company, 29 companies report an impact that exceeds 10 jobs, and five companies report an impact that exceeds 80 jobs. The mean impact is 10.9 jobs, the median impact is 2.3 jobs, the minimum impact is -0.6 jobs, and the maximum impact is 84.4 jobs. The mean impact on the 94 companies that report positive impact is 12.0 jobs.



We also conducted a sensitivity analysis in order to show the upper and lower estimates of the total impact on employment attributed to the NIY Program. Thirty-five out of the 108 companies reported an increase in employment of 100% or more. In the above analysis we assigned a value of 1.5 for the change in employment of 100% or more. Here we assign a value of 1.0 (representing an increase in employment of 100%) and 2.0 (representing an increase in employment of 200%). Again, the impact on employment levels of each responding company is the product of the number of employees, change in employment, and the impact of the NIY Program on change in employment.

The lower estimate of the total impact on employment reported by all 108 companies that responded to the survey is 855 jobs, assuming each of the 35 companies that reported an increase in employment of 100% or more experienced a 100% increase. The upper estimate of the total impact on employment reported by all 108 companies that responded to the survey is 1,490, assuming each of the 35 companies that reported an increase in employment of 100% or more experienced a 200% increase.

The above has shown how different assumptions affect the estimate of total impact on company employment. Our 1,172 jobs estimate of the total aggregate impact of the NIY Program relies on few assumptions, is consistent with assigning values based on the midpoint of changes in employment, and can be directly traced to the reports of company executives of the impact of the NIY Program on their company revenues.

Considering both impact on revenues and impact on employment, 100 of 108 companies (93%) report a positive impact on either revenues or employment, or on both revenues and employment. Companies that didn't experience an impact on revenues or employment levels may have experienced impacts on other dimensions such as new customers or export sales.

Alternative Estimates of Economic Impact of the NIY Program

Our estimate of the economic impact of the NIY Program is extremely conservative as a consequence of our methodology. In this section we relax our assumptions and report the corresponding changes in our estimates of impact.

We begin by changing our approach to dealing with non-respondents. Instead of assuming the impact on non-respondents to be zero, we assume the impact on non-respondents to be the average of the impact on respondents. This increases our estimate of impact on revenues to approximately €138.6 million (€918K mean impact on revenues per participant company * 151 participant companies), and our estimate of the total impact on employment to 1,646 jobs created (10.9 mean impact on employment per participant company * 151 participant companies).

Second, we change our approach to dealing with downstream impacts. Instead of assuming these impacts to be zero, we assume second year impacts are approximately twice first year impacts, third year impacts are approximately three times first year impacts, and fourth year impacts are approximately four times first year impacts, consistent with the findings of an econometric study with firm level panel data on annual changes in revenues and employment for matched assisted and non-assisted firms (Business Development Bank of Canada, 2009). Using this approach, companies that report zero first year impacts are assumed to experience zero impacts in all subsequent years.

We assume that all surveyed companies are reporting first year impacts. This is a reasonable assumption because for 62% of the responding companies, either they were still in the NIY Program or less than a year had elapsed between the time they concluded the NIY Program and the time they completed the survey. For 56% of the remaining companies, less than two years had elapsed. Taking this approach, and using a 30% discount factor to account for the high level of uncertainty associated with the forecasts, we find that while the actual Year 1 impact on revenues is €99.1 million, the forecast Year 2, 3, and 4 impacts are €152.5 million, €175.9 million, and €180.4 million, respectively. This yields an estimate of total forecast impact on revenues, over the four years following the participation of companies in the NIY Program, of approximately €607.9 million.

The above has shown how different assumptions affect the estimate of economic impact. Our €99.1 million estimate of the total aggregate impact of the NIY Program relies on few assumptions and can be directly traced to the reports of company executives of the impact of the NIY Program on their company revenues.

References

Auerback, A.J. & Gorodnichenko, Y. 2012. Fiscal multipliers in recession and expansion. University of California (Berkeley) Working Paper. Available at <http://elsa.berkeley.edu/~auerbach/FMRE-2012-Jan.pdf> [Accessed May 23rd, 2013].

Economist. 2009 (September 24th). Much ado about multipliers: Why do economists disagree so much on whether fiscal stimulus works? Available at <http://www.economist.com/node/14505361> [Accessed May 23rd, 2013].

Business Development Bank of Canada. 2009. Economic impact study: BDC's financing and consulting services. Available at <http://www.bdc.ca/en/Documents/other/Economic%20Impact%20EN%203.pdf> [Accessed May 24th, 2013].

Thematic Analysis: NIY Program Participant Qualitative Responses

In addition to the web-based survey conducted by TEN, a cross-section of the NIY Program participants were asked three open-ended questions regarding their participation in the program through telephone interviews. The responses to these questions were overwhelmingly positive and lend credence to the important role that the NIY Program plays in Finland's business community.

The respondents' general feedback was reflected in a number of recurring themes, including comments on the support offered to participant companies by Tekes; the NIY Program structure; the funding provided to participant companies; and the market expansion made possible as a result of the program. The responses, arranged by theme and translated from Finnish to English, are captured in Appendix G.

Support offered to participant companies by Tekes. Participants indicate that in addition to the provision of funding, the NIY Program offers critical support to their participants. This support comes in a variety of forms including sharing innovative business concepts, offering guidance during periods of uncertainty, and providing opportunities for growth. A number of respondents indicated that the support provided by the NIY program made the future of their company possible.

NIY Program structure. The majority of respondents provided positive feedback regarding the structure, from application to participant progress reviews, of the NIY Program. While many respondents indicated that Tekes, and the NIY Program, employ a unique and rigorous structure, these respondents also indicated that their business was improved and their thinking clarified as a result of having followed the process of the program. Additionally, special mention was made of the ease of interactions between Tekes personnel and participant companies.

Provision of funding to participant companies. A large component of the NIY Program is the provision of funding throughout the three program stages. The respondents indicated that the receipt of funding from the program had enabled their organization to make the necessary investments to grow their business. Furthermore, a number of the respondents who mentioned funding in their comments indicated that the influx of money at the beginning of a company's lifecycle is critical for success.

Market expansion made possible. In keeping with the mandate of the NIY Program, to support fast international growth for young innovative companies, many respondents indicated the effect that the program had on their ability to expand into new markets, especially those located abroad. Respondents mentioned that the program enabled their companies to achieve international growth, and network expansion, at a much faster rate than would otherwise have been possible without the support of the NIY Program.

Opportunities for Improvement in the NIY Program

While most comments made by respondents reflect a positive experience in the NIY Program, several suggestions were made for ways in which Tekes could improve the structure, and subsequently the program experience, for participants.

Reduce bureaucracy of program structure. A minority of respondents expressed frustration with the bureaucratic nature of the NIY Program. The sentiment reflected in these comments was the impracticality of certain aspects of the rigorous NIY Program structure.

Participant evaluation. Overall, respondents indicated that cooperation and communication with Tekes personnel was excellent. However, a minority of respondents indicated that difficulty in communicating issues to the Tekes personnel could have led to their dismissal from the program. The suggestion was made to evaluate participant companies in a more comprehensive manner.

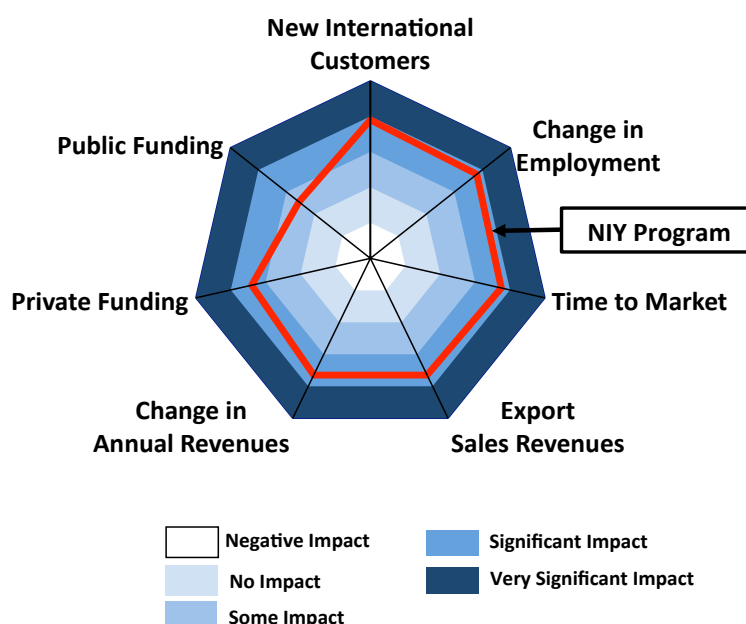
Conclusions and Recommendations

The Evidence Network's assessment of the performance of the NIY Program enables the following conclusions about its impact on client companies:

1. *NIY Program Participant Companies:*

- The participants of the NIY Program range from ICT and digital media companies, to natural resource based companies.
- The intake of new participants into the NIY Program increased year over year between 2008-2011; participation in 2012 was 35% higher than in 2008.
- 35% of the companies had completed the NIY Program at the time of the survey
- 67% of the companies received funding but no other non-financial support from the NIY Program
- 61% of the companies were established between 2005-2008
- Although the NIY Program engages companies from a broad range of sectors, companies were most frequently in the ICT sector, representing 49% of participants
- 43% of the respondents indicated that their company had fewer than 10 employees; 11% of the respondents indicated that their company had 50 or more employees
- 57% of companies employ fewer than 10 employees with a university degree
- 41% of the respondents reported their annual revenues to be less than €500K or that their company was pre-revenue
- 63% of companies allocated more than 30% of their total expenditure to research or development efforts

2. *Indirect Impact on Company Performance:*



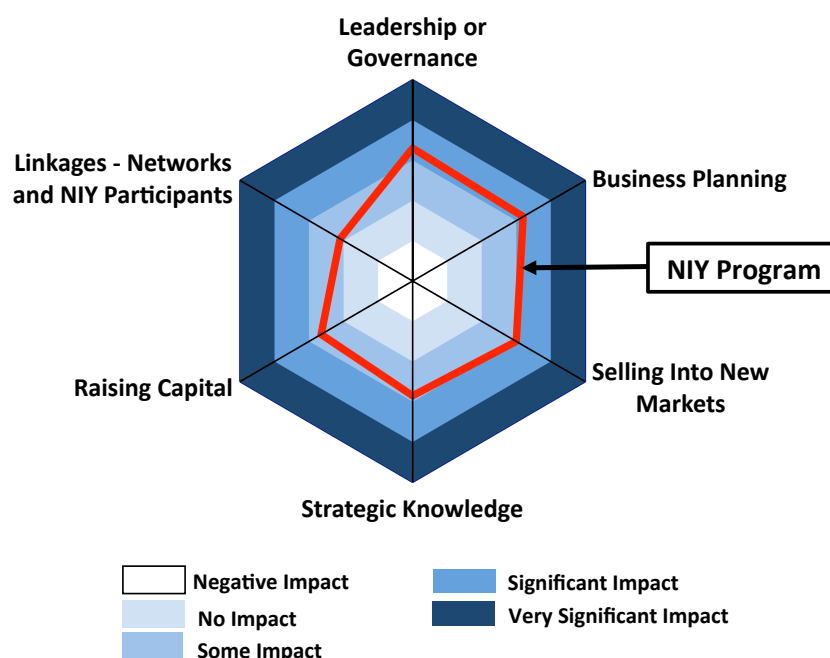
Average Indirect Impact of the NIY Program on Company Performance (all measures)

We found that among all indirect impact performance measures, the NIY Program has greatest impact on acquisition of new international customers, change in employment and time to market. Lesser impact was found on companies' receipt of private and public financing. Companies that used the non-financial NIY support initiatives (Mentoring by Tekes advisors, Contacts with public or private investors, Investor presentation assistance and Contacts with business advisors, accelerators, or board members) as a consequence of their engagement in the NIY Program, attributed the greatest impact on company performance to the NIY Program.

Overall, the tendency to attribute impact to the NIY Program increases as company performance increases, as evidenced by higher impact attribution from companies that acquired more international customers as a result of participating in the NIY Program.

- 96% of the companies that acquired new international customers attributed positive impact to the NIY Program on their ability to attract new international customers.
- 96% of the companies that experienced an increase in employment since first engagement in the NIY Program attributed positive impact to the NIY Program on their ability to create or preserve jobs.
- 94% of the companies that had an elapsed time of less than two years between product or service conceptualization and market launch attributed positive impact to the NIY Program on their ability to introduce new products or services to market.

3. *Direct Impact on Companies' Resources and Capabilities:*



Average Direct Impact of the NIY Program on Companies' Resources and Capabilities (all measures)

We found that among all direct impact measures on companies' resources and capabilities, the NIY Program has the greatest impact on improvements to companies' leadership or governance, business planning, selling into new markets, and strategic knowledge. Lesser impact was found on companies' resources and capabilities related to raising capital and linkages to networks and other NIY participants. Larger companies, those belonging to the ICT, digital media, entertainment and lifestyle sectors, or companies that used the non-financial NIY support initiatives (Mentoring by Tekes advisors, Contacts with public or private investors, Assistance with Investor presentations, and Contacts with business advisors, accelerators, or board members) as a consequence of their engagement in the NIY Program, attributed the greatest direct impact on their resources and capabilities to the NIY Program.

The NIY Program's funding and support initiatives lead to direct impact on companies' resources and capabilities, which in turn leads to the indirect impacts on companies' performance described above. Respondents attributed improvements to the following resources or capabilities to the NIY Program to be 'some', 'significant' or 'very significant':

- Business planning (90% of respondents)
- Leadership or governance (88%)
- Strategic knowledge (84%)
- Selling into new markets (80%)
- Raising capital (70%)
- Linkages – networks and NIY participants (62%)

The average direct impact on the resources and capabilities of companies was greater for respondents that received both funding and non-financial support than those that only received funding (significant at the 99% confidence level).

Further, in support of the NIY Program's mandate, it was determined through data analysis of the Tekes Growth Evaluation Project (GEP) that since first engagement in the NIY Program:

- 100% of respondents indicated at least moderate emphasis was placed on addressing growth objectives
- 96% of respondents indicated that their company placed at least moderate emphasis on altering the international strategy of their business
- 65% of respondents indicated that their company made moderate to radical changes to their business model
- 60% of respondents indicated that their company placed at least moderate emphasis on altering the product or customer strategy of their business
- 52% of respondents indicated that their company made moderate to radical changes to their product or service concept.

4. ***NIY Program Support Initiatives:***

Recognizing that not all companies would avail themselves of all support initiatives offered by the NIY Program, respondents reported ‘moderate’ or ‘high’ degree of use of the following NIY Program support initiatives:

- Mentoring by Tekes advisor (47% of respondents)
- Contact with either public or private investors (37%)
- Participation in other Tekes programs (36%)
- Assistance with investor presentations (33%)
- Contact with business advisors, accelerators, or Board members (33%)

We further analyzed funding support as a subset of support initiatives. As such, we tested for significant differences among the use of the NIY Program funding for the different business functions and found that strengthening international sales networks and marketing was used at the highest degree when compared to all other business functions (significant at the 99% confidence level).

5. ***Relationship between NIY Program Services, Direct Impact, and Indirect Impact on Company Performance:***

We find that the money provided by the NIY Program is the best predictor of improved company performance. Direct impact on companies’ resources and capabilities is also a significant predictor. In particular, improvements to companies’ strategic business knowledge and linkages, and improvements to international marketing capabilities are significant predictors of company growth.

Further, we find that the NIY Program’s direct impact on companies’ resources and capabilities is the best predictor of its indirect impact on companies’ ability to raise additional capital from private and public sources. In particular, it is improvements to financing capabilities of companies that is the best predictor of companies’ ability to raise additional capital from private and public sources.

Overall, it is the combination of direct impacts on companies’ resources and capabilities and the money the NIY Program provides that results in impact on the performance of companies that participate in the NIY Program. These findings are consistent with the NIY Program’s mandate to accelerate the growth and internationalization of the most promising young companies in Finland by providing financial and non-financial support to companies.

6. ***Economic Impact:***

Our findings show that to date, for the 108 companies that participated in the impact assessment survey, the NIY Program has contributed a total of approximately €99.1 million to companies' revenues, and 1,172 jobs. Further, 93% of companies attribute positive impact to the NIY Program on revenues or employment.

7. ***Recommendations:***

It is evident that the NIY Program places a high priority on the financial support it provides participant companies. Indeed, in conducting our regression analysis, we found that the money provided by the NIY Program is the best predictor of improved company performance related to growth. However, we also found that the NIY Program's direct impact on companies' resources and capabilities is the best predictor of its indirect impact on companies' ability to raise additional capital from private and public sources. In particular, it is improvements to financing capabilities of companies that is the best predictor of companies' ability to raise additional capital.

For companies to grow in a highly competitive global economy, and sustain a competitive advantage, technology advancements through R&D must continue, business plans must be modified and updated, market research conducted and analyzed, customer service expanded and improved, etc., all while company strategic objectives are followed. To do so requires that companies not only have the capabilities for scaling, but also additional capital investments to support such growth, above and beyond the funding provided by the NIY Program. Companies need to leverage their acceptance in the NIY Program, and Tekes needs to open up more communication channels with public and private investors, both locally and internationally.

It was found that the average direct impact on the resources and capabilities of companies that were introduced to public or private investors, and that received assistance in making investor presentations, was higher compared to companies that did not receive such support. Therefore, for the NIY Program to fully accomplish its mandate, to accelerate the growth and internationalization of young companies in Finland, TEN recommends that Tekes ensures program participants not only understand the importance of leveraging NIY Program money, but that they also have the capabilities to do so. To achieve sustainable international growth for companies, the NIY Program needs to continue to provide introductions to private and public investors, locally and internationally, and if mandate allows, provide all companies with assistance in creating investor pitches. Through improving companies financing capabilities, the NIY Program will increase their ability to raise additional capital and succeed in a highly competitive global economy.

Further, it was found that improvements to companies' strategic business knowledge and linkages, and improvements to international marketing capabilities are significant predictors of company growth. Therefore, the NIY Program needs to continue offering support that leads to improvements in companies' strategic business knowledge and linkages, in particular through non-financial support related to strategy, business planning, linkages and relationships, as well as information on selling into new markets.

TEN also recommends that Tekes encourage companies to spend the money received through participating in the NIY Program in specific ways. For example, companies that spent more money strengthening their international sales and marketing networks, thereby increasing their international marketing capabilities, report greater impact on company growth than companies that invested their money differently. Of course each company's situation is unique, and company management will understand the needs of their own company the best, but Tekes should still make a list of best practices and investment suggestions based on past NIY Program participants and their experiences, both failures and successes. This information should be segmented by company size, industry sector, internationalization strategy, and by product or service focus to ensure the list of best practices is specifically aligned with each company's requirements. This will provide companies with more information, and enable them to make informed decisions on how to best invest the money received through participating in the NIY Program effectively.

Finally, it was found that older, larger, growing companies, and those that invested more in research or development reported greater average impact on company performance compared to younger, smaller companies that are not growing, and that did not invest as much in research or development. While only company growth and research expenditures are significant in our regression analyses, age and size were determined to be noteworthy when we conducted data correlations. Therefore, while these findings are not the strongest predictors of improvements to company performance, they nonetheless present Tekes with valuable information about the NIY Program that should be utilized.

Additional regression analyses were conducted to determine the relevance of companies' age and size noted above. A new independent variable was introduced that took into consideration the year companies first participated in the NIY Program.¹⁴ It was found that years elapsed since first participation in the NIY Program is a significant predictor of company performance related to growth. Therefore, while age and size were determined to be important when we conducted data correlations, they are not strong predictors of improvements to company performance, and in fact, it is the program itself that is a better predictor of improvements to company performance.

¹⁴ Year of first participation: Indicates the years elapsed since the company first participated in the NIY Program and has an average value of 2.8 years.

Companies that have had more years elapsed since their first participation in the program, and are therefore slightly older and possibly larger, attribute greater impact to the NIY Program on their performance related to growth. This finding demonstrates that the NIY Program is achieving its mandate to help companies grow. However, company growth and research expenditures remained significant in the additional regression analyses conducted. Thus, to maximize the impact attributed to the NIY Program, TEN recommends that Tekes continue to focus on helping growing companies, that invest more in research or development, as these companies attribute greater impact to the NIY Program on their performance.

Overall, the impacts being achieved by the NIY Program are encouraging and important. While companies were selected to participate in the NIY Program based upon their potential to grow internationally, they are diverse, as represented by their age, number of employees, annual revenues, and the industrial sectors in which they operate. With services support across this broad group of companies, achieving impact on both resources and capabilities of companies, as well as on overall company performance, is commendable.

The Evidence Network trusts that the information provided in this report will facilitate discussions among Tekes and NIY Program management, participant companies, and other stakeholders to ensure the NIY Program offers a set of continually improving support initiatives, and that the support provided continues to positively impact the NIY Program's participant companies and Finland's economy.

Using The Evidence Network's methodology, the results in this report can be used to set performance targets for future impact assessments or for comparisons to peer programs or organizations. The Evidence Network looks forward to an ongoing relationship with Tekes in support of its innovation initiatives.

Acknowledgements

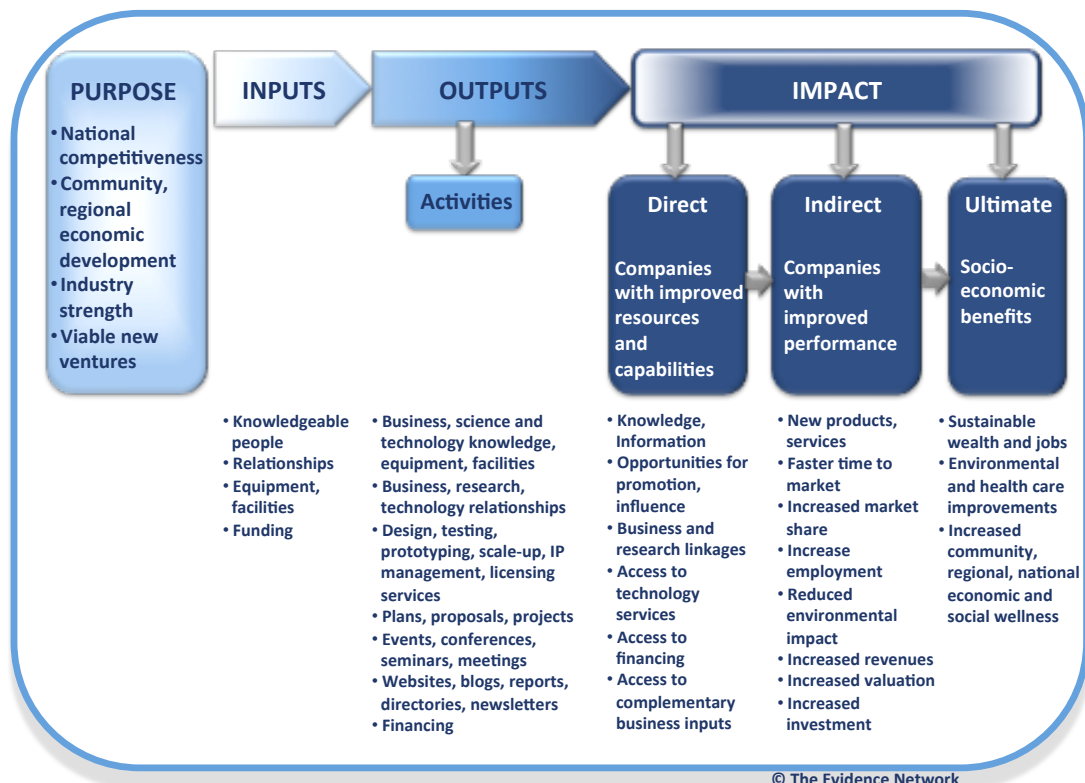
The Evidence Network gratefully acknowledges Marjo Ilmari (Director, Start-up Companies, Tekes), Jari Hyvarinen (Senior Advisor, Economist, Tekes), and Heikki Rannikko (Senior Advisor, Small Business Center, Aalto University School of Business) for their contributions to this work, especially for the wealth of background information and data pertaining to the NIY program, which was essential for development of the survey instrument and the impact assessment analyses. We also express our thanks to Satu Parjanen (Partner, Susinno Ltd.), for her contributions in contacting NIY Program participant companies to elicit additional responses to the survey, thereby increasing the overall response rate to the survey, and allowing a thematic analysis to be conducted on the additional information and insights captured from telephone interviews.

Appendix A: TEN's Impact Assessment Methodology

TEN's approach to measuring innovation impact is based on the premise that innovation intermediaries can be described as an overarching class of organizations whose members share common goals. Despite their diversity, innovation intermediaries, ranging from small economic development organizations to large and sophisticated research institutes, seek to make their member or client companies more innovative, in the interests of facilitating increases in their viability, profitability, or other manifestations of their success.

The logic model shown below illustrates how innovation intermediaries work to fulfill their missions, and how TEN measures their impact. As shown at the top-left of the diagram, innovation intermediaries express their purpose in terms of national competitiveness, regional economic development, industry strength, or viable new ventures, and conduct activities to achieve direct impact on companies' resources and capabilities, indirect impact on companies' performance, and long-term impacts in the form of socio-economic benefits. The direct impact of innovation intermediaries are improvements in the resources or capabilities of client or member companies, impacts on company performance are improvements in market performance of client or member companies, and long-term impacts affect communities, industries, economies, societies, and the environment.

TEN's Innovation Intermediary Logic Model



Working backwards, from right to left, the logic model shows *how* different types of impact are achieved. The achievement of long-term, or ultimate, impact depends on the achievement of impacts on company performance, which in turn depends on the achievement of direct impact on companies' resources and capabilities. So, for example, an innovation intermediary that seeks to create economic growth in a region (its purpose and desired long-term impact) does so by facilitating improvements in the performance of local companies (its desired impact on companies' performance), either by facilitating company growth, creating new ventures, or by attracting new companies to the region. It facilitates company growth and the creation of new ventures by facilitating improvements in the resources and capabilities of local companies (its desired direct impact). The fundamental logic is that innovation intermediaries achieve their desired impacts on company performance and long-term impacts by affecting the resources and capabilities of the companies with which they work.

TEN measures the intensity of use of intermediary services, and the direct impact and indirect impact on company performance of innovation intermediaries.

By measuring direct impact on resources and capabilities TEN provides intermediary managers, boards of directors, and funders with timely feedback on the suitability and effectiveness of intermediary services. Note that we measure direct impact on resources and capabilities by asking about the *impact* of intermediary services on specific company resources and capabilities, not by asking about *satisfaction* with intermediary services, as a customer satisfaction survey would do. While clients may be satisfied with an intermediary's networking event, the event may or may not have had an impact on their ability to find, for example, new suppliers.

By measuring indirect impact on companies' market performance, TEN provides management, investors, and other stakeholders with evidence of the effect of intermediary services on company performance in terms of new products and services, employment, or revenues, etc. Measuring impact on companies' market performance is important because it corresponds to the missions of intermediaries and provides the hard evidence of results that stakeholders seek. But company performance depends on a number of factors and so to assess indirect company performance impact we consider both the change in company performance and the degree to which the change is attributable to the intermediary. For example, to determine the impact of a research institute on the revenues of client companies, we ask about both changes in revenues and the degree to which those changes are attributable to the services of the research institute.

Innovation intermediaries hope to have long-term impacts that correspond to their missions. But the measurement of long-term impact is difficult because changes in the economy, the environment, or society are brought about by the collective actions of many players. So it is difficult to attribute such changes to the activities of a single organization. But as long-term impact is facilitated by the achievement of market performance impact, evidence of impact on companies' market performance is suggestive of possible long-term effects.

TEN's logic model expresses the expectation that outputs create direct impact and that direct impact on company resources and capabilities will lead to subsequent impacts on company performance, an expectation that holds across all types of innovation intermediaries. Details of how innovation intermediaries achieve their desired impact are shown in the lower part of the diagram. The activities in which innovation intermediaries engage are supported by knowledge-based and tangible inputs, and they lead to a wide range of outputs such as knowledge, relationships, events, publications, prototypes, equipment, and facilities. The outputs are expected to lead, in turn, to direct impacts, impacts on company performance, and long-term impacts described above.

Statistical examinations of the relationships between outputs, direct impact on resources and capabilities, and impacts on company performance make it possible to assess which outputs and direct impacts are significantly related to the impact of the intermediary on companies' performance in the market.

TEN measures the intensity of use of outputs, and direct and indirect impact on company performance using a customized survey instrument. Our impact assessment surveys are short and easy for member or client companies to complete. Assessments can focus on a single organization, can compare actual to targeted performance, or can compare the performance of multiple units, divisions or organizations.

Appendix B: Description of Sample

The survey was launched on 6 May 2013 and companies were able to respond until 17 May 2013.

The following table provides information on the relationship between the number of invitations sent to potential respondents and the number of individuals that actually responded to the survey.

Survey Response Profile of the NIY Program Participants	
Number of Invitations sent to NIY Program participants	151
Number of e-mail reminders to all non-respondents sent by TEN	3
Number of telephone reminders	77
Number of NIY Program clients that entered the survey website	109
Number of participants that provided survey responses	108
Number of partial responses	4
Response Rate	72%
Number of e-mail reminders to all non-respondents sent by TEN	3

Seventy-three (73%) of the respondents took less than 20 minutes to complete the survey, having an average time-to-complete of 10.2 minutes. From the distribution with time-to-complete (approximately normally distributed around the average for those who took less than 20 minutes to complete), it is evident that the remainder of respondents were distracted, taking between 20.2 minutes and 11 days to complete the survey, also resulting in four partial responses if they had not completed the survey before it closed. Only one respondent went to the survey website and failed to provide responses. The good response rate is the result of follow-up telephone calls conducted by Satu Parjanen (Sussino Ltd., Finland), and from e-mail reminders sent by TEN. The response rate also demonstrates the significant interest of the NIY Program participants.

Appendix C: Examples of Questions

Examples of questions used by The Evidence Network to elicit degree of use of support initiatives, and the importance of direct and indirect impacts are shown below.

Degree of Use of Support Initiatives

This example pertains to the ‘Degree of use of the NIY Program support Initiatives.’

The question focuses on the degree of use of key services of The NIY Program. Incremental ratings are as follows: Did not use, Low Degree of use, Moderate Degree of use, and High degree of use.

Please assess the degree of use of the following support initiatives, provided by Tekes or other partners, which were facilitated by the NIY Program.

Degree of use can refer to the frequency of use, number of business representatives involved, or the duration of each use event.

For example, 'Low degree of use' can mean the support initiative was used infrequently, few business representatives were involved, or little time was invested in the use of the service.

- Mentoring by Tekes advisor
- Contact with either public or private investors
- Participation in other Tekes programs
- Assistance with investor presentations
- Contact with business advisors, accelerators, or Board members

Degree of Use of Funds Provided through the NIY Program

This example pertains to the ‘Degree of use of the funds allocated through the NIY Program.’

The question focuses on the degree of use of funds for key business functions. Incremental ratings are as follows: Did not use, Low Degree of use, Moderate Degree of use, and High degree of use.

Respondents were asked to rate the different business functions in terms of the degree of use. The following lead question was presented to respondents:

Please identify the degree of use of the funds provided through the NIY Program in the following functions of your company.

Degree of use refers to the amount of money provided by the NIY Program that was spent in the areas listed below.

- Strengthen international sales networks; marketing
- Strengthen human resources; improve internal processes
- Product or service development; scale-up; manufacturing
- Concept development
- Acquire additional capital
- Buy new equipment

Direct Impact on Resources and Capabilities

This example pertains to the facilitation of the 'Business planning' measure. It provides the question, example of the support initiative referred to, and the scales that were used to elicit direct impact. The examples are particularly important to ensure respondents provide actual impact responses related to the support initiative being described.

To what degree did improvements to business planning, facilitated through your participation in the NIY Program, impact your company?

Examples include assistance with implementation of growth strategies or expansion plans, or development of financial projections, marketing or pricing strategies, operational plans, or cost reduction plans.

Please choose one of the following responses:

- Very significant impact
- Significant impact
- Some impact
- No impact
- Negative impact
- Not applicable

Indirect Impact on Company Performance

This example below pertains to the 'Market share – New international customers' measure.

Indirect company performance impact is assessed using a question pair. The first question elicits information on company performance.

The second question elicits attribution of impact. In the second question, each impact response has an explanatory phrase to ensure other interpretations, perceptions and opinions related to the impact responses are minimized.

Question 1: Market share – New international customers

How many new international customers has your company acquired since its first engagement in the NIY Program?

- *10 or more new international customers*
- *Between 3 and 9 new international customers*
- *1 or 2 new international customers*
- *We have no acquired new international customers*

Question 2: Impact Attribution

To what degree has the NIY Program impacted the number of new international customers acquired by your company?

Please choose one of the following responses:

- **Very significant impact**, without the NIY Program we would have acquired many fewer
- **Significant impact**, without the NIY Program we would have acquired somewhat fewer
- **Some impact**, without the NIY Program we would have acquired marginally fewer
- **No impact**, the NIY Program had no impact on our company's ability to acquire new international customers
- **Negative impact**, the NIY Program made it harder for our company to acquire new international customers
- **Not applicable**

Appendix D: Segmented Indirect Impact on Company Performance

In the tables below we show average indirect impact on company performance scores (out of 10) for each measure segmented according to the first year of participation in the NIY Program, the company's status within the NIY Program, the year companies were founded, industrial sector, customer industrial sectors, employee demographics, annual revenues, and expenditures made in research and development. Tables that show the average company performance impact scores segmented according to the services of The NIY Program follow these tables.

We tested the segmented data to determine if there were significant differences between sub-samples. For all impact on company performance measure scores and for the means of the company performance impact scores across all measures, significant differences between groups at the 99% confidence level are indicated by the 'A's, 'B's, 'C's and 'D's, while differences at the 95% confidence level are indicated by the 'a's, 'b's, 'c's, and 'd's.

Due to the paucity of data, and where appropriate, findings were grouped to provide the best overall representation of the impact of the NIY Program on client companies.

Company Performance Impact Scores of the NIY Program Segmented by
First Year of Participation in the NIY Program

	Mean	Year of Companies' First Participation				
		A. 2008	B. 2009	C. 2010	D. 2011	E. 2012
Mean	7.2	7.0 ---	7.0 ---	7.2 ---	7.0 ---	7.5 ---
Impact on New International Customers	7.9	8.2 ---	7.1 ---	8.0 ---	7.8 ---	8.2 ---
Impact on Change in Employment	7.6	7.2 ---	7.6 ---	7.3 ---	8.1 ---	7.7 ---
Impact on Time to Market	7.5	6.4 ---E	7.5 ---	7.4 ---e	7.1 ---e	8.8 A-cd-
Impact on Export Sales Revenues	7.4	8.0 ---	6.7 ---	7.6 ---	7.3 ---	7.4 ---
Impact on Change in Annual Revenues	7.3	7.5 ---	7.2 ---	7.4 ---	7.4 ---	7.2 ---
Impact on Private Financing Received	6.8	6.0 ---	6.4 ---	7.4 ---	6.5 ---	7.1 ---
Impact on Public Financing Received	5.1	5.6 ---	6.3 ---d-	4.4 ---	3.8 -b---	5.6 ---

Company Performance Impact Scores of the NIY Program Segmented by
Companies' Status in the NIY Program

	Mean	Companies' NIY Program Status	
		A. Currently in Program	B. Completed Program
Mean	7.4	7.4 --	7.3 --
Impact on New International Customers	8.1	8.2 --	7.9 --
Impact on Change in Employment	7.9	7.8 --	7.9 --
Impact on Time to Market	7.7	7.8 --	7.4 --
Impact on Export Sales Revenues	7.6	7.6 --	7.5 --
Impact on Change in Annual Revenues	7.5	7.5 --	7.6 --
Impact on Private Financing Received	6.9	6.9 --	7.0 --
Impact on Public Financing Received	5.2	4.9 --	5.6 --

Company Performance Impact Scores of the NIY Program Segmented by
Year Company Founded

	Mean	Year Company Founded		
		A. 2001-2004	B. 2005-2008	C. 2009-2013
Mean	7.2	7.6 ---	7.2 ---	7.0 ---
Impact on New International Customers	7.8	7.9 ---	8.1 ---	7.2 ---
Impact on Change in Employment	7.6	8.3 ---	7.5 ---	7.6 ---
Impact on Time to Market	7.5	8.8 ---	7.3 ---	7.7 ---
Impact on Export Sales Revenues	7.3	7.9 ---	7.6 ---	6.8 ---
Impact on Change in Annual Revenues	7.3	6.7 ---	7.7 ---	6.8 ---
Impact on Private Financing Received	6.9	7.5 ---	6.7 ---	7.2 ---
Impact on Public Financing Received	5.0	5.0 ---	4.9 ---	5.3 ---

Company Performance Impact Scores of the NIY Program Segmented by Companies' Industrial Sector

	Mean	Companies' Industrial Sector								
		A. Information Communications Technologies	B. Digital Media	C. Biotechnology, Health, Medical	D. Energy, Environment	E. Entertainment/ Lifestyle	F. Professional- /Business Services	G. Construction	H. Materials or Manufacturing	I. Other
Mean	7.2	6.9 -B-E-g-I	8.2 A-cD-F-H-	7.4 -b-ef-i	7.0 -B-E-i	9.0 A-cD-F-H-	6.0 -Bc-E-g-I	8.8 a-f-h-	6.6 -B-E-g-I	8.4 A-cd-F-H-
Impact on New International Customers	7.8	7.8 -----	8.9 -----	7.7 -----	7.0 -----	10.0 -----	5.8 -----	10.0 -----	7.5 -----	9.4 -----
Impact on Change in Employment	7.6	7.3 -----	8.3 -----h-	8.3 -----H-	8.2 -----h-	10.0 -----	6.7 -----	10.0 -----	5.4 -bCd-i	8.8 -----h-
Impact on Time to Market	7.5	7.3 -----	8.6 -----	6.7 -----	7.7 -----	7.5 -----	7.5 -----	7.5 -----	-----	8.2 -----
Impact on Export Sales Revenues	7.3	7.4 -----	8.1 -----	6.8 -----	6.8 -----	8.8 -----	6.7 -----	10.0 -----h-	6.8 -----g-i	8.8 -----h-
Impact on Change in Annual Revenues	7.3	7.1 -----	7.5 -----	7.3 -----	7.5 -----	8.8 -----	8.3 -----	10.0 -----	6.8 -----	8.8 -----
Impact on Private Financing Received	6.8	6.2 -c-----	8.1 -----f--	8.2 a-f-----	7.0 -----	8.8 -----f--	4.2 -bc-e---	5.0 -----	7.1 -----	6.3 -----
Impact on Public Financing Received	5.1	4.6 -b-----i	8.0 a-d-f-h-	6.3 -----	4.2 -b-----i	10.0 -----Gh-	2.5 -b-----i	- -----E---	4.0 -b-e-i	8.3 a-d-f-H-

Company Performance Impact Scores of the NIY Program Segmented by Customers' Industrial Sector

	Mean	Customers' Industrial Sector									
		A. Information Communications Technologies	B. Digital Media	C. Biotechnology, Health, Medical	D. Energy, Environment	E. Entertainment/ Lifestyle	F. Professional- /Business Services	G. Construction	H. Materials or Manufacturing	I. Forestry, Pulp & Paper	J. Other
Mean	7.2	6.8 -----j	7.1 -----	6.9 -----j	6.8 -----j	6.8 -----j	7.0 -----	6.8 -----j	7.1 -----	7.0 -----	7.6 A-CDe-g---
Impact on New International Customers	7.8	7.4 -----j	7.6 -----	7.4 -----	7.1 -----j	7.6 -----	8.1 -----	7.3 -----	7.8 -----	8.2 -----	8.5 a-d-----
Impact on Change in Employment	7.6	7.5 -----	8.0 -----	7.6 -----	7.6 -----	7.5 -----	8.0 -----	7.8 -----	7.4 -----	7.8 -----	7.9 -----
Impact on Time to Market	7.5	7.2 -----	7.4 -----	6.8 -----j	7.6 -----	7.3 -----	7.0 -----	7.5 -----	7.8 -----	7.8 -----	8.2 -----c---
Impact on Export Sales Revenues	7.3	7.4 -----	7.2 -----	6.9 -----	7.0 -----	7.5 -----	8.0 -----	7.2 -----	7.8 -----	8.6 -----	8.0 -----
Impact on Change in Annual Revenues	7.3	7.1 -----	7.2 -----	7.0 -----	7.3 -----	6.6 -----	7.1 -----	6.9 -----	7.8 -----	7.2 -----	7.4 -----
Impact on Private Financing Received	6.8	6.1 -----	6.4 -----	6.9 -----	6.3 -----	5.9 -----	6.0 -----	5.8 -----	6.6 -----	5.0 -----	7.0 -----
Impact on Public Financing Received	5.1	4.4 -----	5.1 -----	4.9 -----	3.5 -----	4.3 -----	3.8 -----	3.6 -----	3.4 -----	1.9 -----	5.6 -----

Company Performance Impact Scores of the NIY Program Segmented by
Number of Employees

	Mean	Number of Employees	
		A. <10	B. 10 or more
Mean	7.2	7.0 --	7.3 --
Impact on New International Customers	7.8	7.5 --	8.1 --
Impact on Change in Employment	7.6	7.6 --	7.6 --
Impact on Time to Market	7.5	7.4 --	7.5 --
Impact on Export Sales Revenues	7.3	7.0 --	7.6 --
Impact on Change in Annual Revenues	7.3	7.3 --	7.4 --
Impact on Private Financing Received	6.8	6.8 --	6.8 --
Impact on Public Financing Received	5.1	4.8 --	5.4 --

Company Performance Impact Scores of the NIY Program Segmented by
Number of Employees with University Education

	Mean	Number of Employees with University Education			
		A. <10	B. 10-19	C. 20-50	D. >50
Mean	7.2	7.2 ----	7.2 ----	7.3 ----	6.8 ----
Impact on New International Customers	7.8	7.8 ----	7.9 ----	8.0 ----	7.5 ----
Impact on Change in Employment	7.6	7.4 ----	7.5 ----	8.6 ----	7.8 ----
Impact on Time to Market	7.5	7.6 ----	7.2 ----	7.3 ----	7.5 ----
Impact on Export Sales Revenues	7.3	7.3 ----	7.3 ----	8.0 ----	6.9 ----
Impact on Change in Annual Revenues	7.3	7.5 ----	7.0 ----	7.5 ----	6.7 ----
Impact on Private Financing Received	6.8	6.9 ----	7.8 --Cd	5.5 -B--	5.4 -b--
Impact on Public Financing Received	5.1	5.1 ----	5.5 ----	5.0 ----	5.0 ----

Company Performance Impact Scores of the NIY Program Segmented by
Companies' Annual Revenues

	Mean	Companies' Annual Revenues				
		A. <€500K or Pre-revenue	B. €500K-1 million	C. €1-2 million	D. €2-5 million	E. >€5 million
Mean	7.2	7.2 -B---	6.3 A-CDE	7.6 -B---	7.4 -B---	7.4 -B---
Impact on New International Customers	7.8	7.8 ----	6.6 -c-	8.3 -b-	8.2 ----	8.6 ----
Impact on Change in Employment	7.6	7.4 ----	6.7 -d-	8.3 ----	8.7 -b-	7.5 ----
Impact on Time to Market	7.5	7.5 ----	7.0 ----	8.1 ----	7.3 ----	7.5 ----
Impact on Export Sales Revenues	7.3	7.0 ----	6.2 -cde	7.9 -b-	8.3 -b-	8.3 -b-
Impact on Change in Annual Revenues	7.3	7.2 ----	6.8 ----	8.1 ----	7.3 ----	7.8 ----
Impact on Private Financing Received	6.8	7.6 -B-e	5.6 A---	6.4 ----	6.5 ----	5.4 a---
Impact on Public Financing Received	5.1	5.3 ----	4.8 ----	4.8 ----	5.0 ----	5.7 ----

Company Performance Impact Scores of the NIY Program Segmented by
Companies' Research or Development Expenditures

	Mean	Research or Development Expenditures				
		A. <10%	B. 10-29%	C. 30-59%	D. 60-89%	E. 90% or more
Mean	7.2	5.7 -BCdE	7.4 A-d-	7.2 A---	6.8 ab-e	8.1 A-d-
Impact on New International Customers	7.8	5.0 -bC-e	8.2 a---	8.1 A---	7.2 ----	8.8 a---
Impact on Change in Employment	7.6	6.3 ----	8.1 ----	7.2 ----	7.9 ----	7.5 ----
Impact on Time to Market	7.5	6.9 ----	7.8 ----	7.6 ----	6.5 -e	9.4 -d-
Impact on Export Sales Revenues	7.3	5.0 -bc-	7.6 a---	7.8 a-d-	6.5 -c-	8.3 ----
Impact on Change in Annual Revenues	7.3	6.3 ----	7.7 ----	7.5 ----	6.6 ----	7.5 ----
Impact on Private Financing Received	6.8	5.6 ----	6.5 ----	6.8 ----	7.4 ----	7.5 ----
Impact on Public Financing Received	5.1	3.8 ----	5.4 ----	4.7 ----	5.1 ----	7.5 ----

Company Performance Impact Scores of the NIY Program Segmented by
Mentoring by Tekes Advisor

	Mean	Mentoring by Tekes Advisor			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	7.5	6.1 --CD	6.9 --CD	8.2 AB--	8.4 AB--
Impact on New International Customers	8.1	7.5 ---	7.9 ---	8.3 ---	8.5 ---
Impact on Time to Market	7.8	6.7 --Cd	6.3 --Cd	9.4 AB--	9.5 ab--
Impact on Export Sales Revenues	7.7	5.8 ---	7.3 ---	8.8 ---	8.0 ---
Impact on Private Financing Received	7.6	5.8 ---	7.3 ---	7.8 ---	9.0 ---
Impact on Change in Employment	7.4	8.3 ---	6.9 ---	7.2 ---	8.5 ---
Impact on Change in Annual Revenues	7.4	5.0 --cd	6.7 ---	8.6 a--	8.5 a--
Impact on Public Financing Received	5.8	4.2 ---	5.6 ---	6.5 ---	6.5 ---

Company Performance Impact Scores of the NIY Program Segmented by
Participation in Other Tekes Programs

	Mean	Participation in Other Tekes Programs			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	7.4	7.3 ---	7.2 ---	7.3 ---	7.9 ---
Impact on New International Customers	8.0	8.8 ---	7.5 ---	7.0 ---	7.9 ---
Impact on Time to Market	7.7	7.7 ---	7.5 ---	8.5 ---	7.5 ---
Impact on Export Sales Revenues	7.6	7.3 ---	7.9 ---	7.5 ---	7.9 ---
Impact on Private Financing Received	7.6	7.1 ---	7.9 ---	8.1 ---	8.0 ---
Impact on Change in Employment	7.3	7.3 ---	6.7 ---	7.5 ---	7.9 ---
Impact on Change in Annual Revenues	7.3	7.3 ---	6.7 ---	8.0 ---	7.5 ---
Impact on Public Financing Received	5.8	5.4 ---	5.8 ---	2.5 --d	8.5 --c-

Company Performance Impact Scores of the NIY Program Segmented by
Contact with either Private or Public Investors

	Mean	Assistance with Public or Private Investors			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	7.5	6.6 -bc-	7.9 a---	7.9 a---	6.9 ---
Impact on New International Customers	8.1	7.5 ---	9.3 --d	8.1 ---	5.8 -b--
Impact on Time to Market	7.8	7.5 ---	8.1 ---	8.1 ---	6.7 ---
Impact on Export Sales Revenues	7.7	7.9 ---	8.2 ---	7.5 ---	5.8 ---
Impact on Private Financing Received	7.6	6.4 ---	7.5 ---	8.1 ---	9.2 ---
Impact on Change in Employment	7.4	5.4 -bc-	8.1 a---	8.4 a---	6.7 ---
Impact on Change in Annual Revenues	7.4	7.5 ---	7.3 ---	8.1 ---	5.8 ---
Impact on Public Financing Received	5.8	1.9 --cD	6.4 ---	6.3 a---	8.3 A---

Company Performance Impact Scores of the NIY Program Segmented by
Assistance with Investor Presentations

	Mean	Assistance with Investor Presentations			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	7.5	7.3 ---	7.2 --c-	8.3 -b--	7.2 ---
Impact on New International Customers	8.1	8.0 ---	8.3 ---	8.8 ---	6.9 ---
Impact on Time to Market	7.8	8.5 ---	7.2 ---	9.6 ---	6.9 ---
Impact on Export Sales Revenues	7.7	7.5 ---	7.7 ---	8.3 ---	6.9 ---
Impact on Private Financing Received	7.6	6.0 -C-	7.0 ---	9.6 A---	8.8 ---
Impact on Change in Employment	7.4	6.0 ---	7.8 ---	7.5 ---	7.5 ---
Impact on Change in Annual Revenues	7.4	8.0 ---	7.0 ---	8.3 ---	6.9 ---
Impact on Public Financing Received	5.8	6.3 ---	5.5 ---	5.5 ---	6.9 ---

Company Performance Impact Scores of the NIY Program Segmented by
Contact with Business Advisors, Accelerators, or Board Members

	Mean	Contacts with Business Advisors, Accelerators, or Board of Director's Members			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	7.5	7.2 --C-	6.9 --C-	8.8 AB--	7.8 ---
Impact on New International Customers	8.1	8.6 ---	7.5 ---	8.8 ---	8.1 ---
Impact on Time to Market	7.8	8.4 ---	6.5 --c-	9.6 -b--	8.1 ---
Impact on Export Sales Revenues	7.7	7.5 ---	7.3 ---	8.3 ---	8.1 ---
Impact on Private Financing Received	7.6	6.9 ---	7.0 ---	9.2 ---	8.1 ---
Impact on Change in Employment	7.4	7.5 ---	6.5 --C-	9.6 -B--	6.9 ---
Impact on Change in Annual Revenues	7.4	7.5 ---	6.5 ---	8.3 ---	8.8 ---
Impact on Public Financing Received	5.8	2.9 -b--	7.2 a---	6.9 ---	5.8 ---

Company Performance Impact Scores of the NIY Program Segmented by
Type of Support

	Mean	Type of Support			
		A. Funding	B. Other	C. Both funding and other support	D. Neither funding nor other support
Mean	7.2	7.1 --D	7.3 ---	7.4 --D	6.0 A-C-
Impact on New International Customers	7.8	7.8 ---	7.5 ---	8.1 ---	6.3 ---
Impact on Change in Employment	7.6	7.8 ---	8.8 ---	7.2 ---	6.3 ---
Impact on Time to Market	7.5	7.4 ---	7.5 ---	7.8 ---	5.0 ---
Impact on Export Sales Revenues	7.3	7.3 ---	6.3 ---	7.7 ---	6.3 ---
Impact on Change in Annual Revenues	7.3	7.4 ---	8.8 ---	7.2 ---	6.3 ---
Impact on Private Financing Received	6.8	6.5 --c-	6.3 ---	7.7 a---	5.0 ---
Impact on Public Financing Received	5.1	4.8 ---	5.0 ---	5.8 ---	6.3 ---

Appendix E: Segmented Direct Impact on Resources and Capabilities

In the tables below we show average direct impact scores (out of 10) for each measure segmented according to the first year of participation in the NIY Program, the company's status within the NIY Program, the year companies were founded, industrial sector, customer industrial sectors, employee demographics, annual revenues, and expenditures made in research and development. Tables that show the average direct impact scores segmented according to the services of the NIY Program follow these tables.

We tested the segmented data to determine if there were significant differences between sub-samples. For all direct impact measure scores and for the means of the direct impact scores across all measures, significant differences between groups at the 99% confidence level are indicated by the 'A's, 'B's, 'C's and 'D's, while differences at the 95% confidence level are indicated by the 'a's, 'b's, 'c's, and 'd's.

Due to the paucity of data, and where appropriate, findings were grouped to provide the best overall representation of the impact of The NIY Program on client companies.

Direct Impact Scores of the NIY Program Segmented by
First Year of Participation in the NIY Program

	Mean	Year of Companies' First Participation				
		A. 2008	B. 2009	C. 2010	D. 2011	E. 2012
Mean	5.7	5.3 ---E	5.6 ---e	5.5 ---E	5.8 ----	6.3 AbC--
Leadership or Governance	6.7	5.2 --c-E	6.4 ----	6.9 a---	6.5 ----	7.7 A---
Business Planning	6.4	6.4 ----	6.4 ----	5.6 ---d-	6.8 --c--	6.7 ----
Selling Into New Markets	6.0	6.0 ----	5.4 ----	5.6 ----	6.1 ----	6.8 ----
Strategic Knowledge	5.8	5.8 ----	5.3 ----	5.6 ----	5.8 ----	6.3 ----
Raising Capital	5.3	4.3 ----	5.5 ----	5.5 ----	5.0 ----	5.8 ----
Linkages - Networks and NIY Participants	4.2	4.2 ----	4.4 ----	3.9 ----	4.5 ----	4.0 ----

Direct Impact Scores of the NIY Program Segmented by
Companies' Status in the NIY Program

	Mean	Companies' NIY Program Status	
		A. Currently in Program	B. Completed Program
Mean	5.9	5.9 --	5.7 --
Leadership or Governance	6.8	7.2 -b	6.1 a-
Business Planning	6.6	6.5 --	6.6 --
Selling Into New Markets	6.1	6.1 --	6.1 --
Strategic Knowledge	5.9	6.0 --	5.8 --
Raising Capital	5.4	5.5 --	5.3 --
Linkages - Networks and NIY Participants	4.3	4.2 --	4.3 --

Direct Impact Scores of the NIY Program Segmented by
Year Company Founded

	Mean	Year Company Founded		
		A. 2001-2004	B. 2005-2008	C. 2009-2013
Mean	5.7	6.1 ---	5.7 ---	5.8 ---
Leadership or Governance	6.7	5.4 ---	6.6 ---	7.0 ---
Business Planning	6.4	7.1 ---	6.3 ---	6.3 ---
Selling Into New Markets	6.0	7.1 ---	5.8 ---	6.1 ---
Strategic Knowledge	5.8	6.5 ---	5.8 ---	5.5 ---
Raising Capital	5.3	6.0 ---	5.1 ---	5.6 ---
Linkages - Networks and NIY Participants	4.2	4.6 ---	4.3 ---	4.1 ---

Direct Impact Scores of the NIY Program Segmented by
Companies' Industrial Sector

	Mean	Companies' Industrial Sector		
		A. ICT, Entertainment/Lifestyle	B. Services, Health, Natural Resources	C. Other
Mean	5.7	5.9 -b-	5.4 a--	5.1 ---
Leadership or Governance	6.7	6.8 ---	6.5 ---	5.0 ---
Business Planning	6.4	6.6 ---	6.0 ---	5.6 ---
Selling Into New Markets	6.0	6.4 -b-	5.2 a--	5.6 ---
Strategic Knowledge	5.8	6.0 ---	5.4 ---	4.2 ---
Raising Capital	5.3	5.1 ---	5.7 ---	6.3 ---
Linkages - Networks and NIY Participants	4.2	4.5 -b-	3.7 a--	3.8 ---

Direct Impact Scores of the NIY Program Segmented by
Customer's Industrial Sector

	Mean	Customers' Industrial Sector									
		A. Information Communications Technologies	B. Digital Media	C. Biotechnology, Health, Medical	D. Energy, Environment	E. Entertainment/Lifestyle	F. Professional/Business Services	G. Construction	H. Materials or Manufacturing	I. Forestry, Pulp & Paper	J. Other
Mean	5.7	6.0 -c--g--	6.2 --C--G--j	5.4 aB-----	5.8 -----	5.8 -----	6.0 -----	5.4 aB-----	5.9 -----	5.7 -----	5.7 -b-----
Leadership or Governance	6.7	6.6 -----	7.1 -----	6.6 -----	7.1 -----	7.0 -----	7.1 -----	6.7 -----	7.4 -----	8.1 -----j	6.5 -----t
Business Planning	6.4	6.5 -----	6.6 -----	6.1 -----	6.4 -----	6.2 -----	6.3 -----	5.9 -----	6.1 -----	5.7 -----	6.3 -----
Selling Into New Markets	6.0	6.7 -c-----	6.7 -c-----	5.1 ab--f--	5.8 -----	6.5 -----	7.2 -C-----	5.8 -----	6.3 -----	5.7 -----	5.9 -----
Strategic Knowledge	5.8	5.7 -----	6.3 -----	5.5 -----	6.3 -----	5.6 -----	5.7 -----	5.2 -----	5.9 -----	5.4 -----	6.0 -----
Raising Capital	5.3	5.6 -----	5.4 -----	5.5 -----	4.6 -----	4.7 -----	5.3 -----	4.2 -----	5.2 -----	4.6 -----	4.8 -----
Linkages - Networks and NIY Participants	4.2	4.5 -----	4.8 -c-----	3.8 -b-d---	4.8 -c-----	4.6 -----	4.3 -----	4.4 -----	4.5 -----	4.3 -----	4.3 -----

Direct Impact Scores of the NIY Program Segmented by
Number of Employees

	Mean	Number of Employees	
		A. <10	B. 10 or more
Mean	5.7	5.5 -b	5.9 a-
Leadership or Governance	6.7	6.2 --	7.1 --
Business Planning	6.4	6.0 --	6.7 --
Selling Into New Markets	6.0	5.7 --	6.2 --
Strategic Knowledge	5.8	5.5 --	6.0 --
Raising Capital	5.3	5.2 --	5.4 --
Linkages - Networks and NIY Participants	4.2	4.4 --	4.1 --

Direct Impact Scores of the NIY Program Segmented by
Number of Employees with University Education

	Mean	Number of Employees with University Education			
		A. <10	B. 10-19	C. 20-50	D. >50
Mean	5.7	5.6 ---	6.1 ---	5.8 ---	5.3 ---
Leadership or Governance	6.7	6.4 ---	7.3 ---	7.1 ---	6.6 ---
Business Planning	6.4	6.3 ---	6.3 ---	6.6 ---	6.7 ---
Selling Into New Markets	6.0	6.0 ---	6.3 ---	6.2 ---	5.3 ---
Strategic Knowledge	5.8	5.7 ---	5.7 ---	6.3 ---	5.6 ---
Raising Capital	5.3	5.2 ---	6.3 -c	4.5 -b-	4.7 ---
Linkages - Networks and NIY Participants	4.2	4.3 ---	4.5 -d	4.2 ---	3.3 -b-

Direct Impact Scores of the NIY Program Segmented by
Companies' Annual Revenues

	Mean	Companies' Annual Revenues				
		A. <€500K or Pre-revenue	B. €500K-1 million	C. €1-2 million	D. €2-5 million	E. >€5 million
Mean	5.7	5.9 -B---	5.1 A-Cd-	5.9 -B---	5.8 -b---	5.8 ----
Leadership or Governance	6.7	6.7 ----	5.8 ----	7.4 ----	7.0 ----	6.3 ----
Business Planning	6.4	6.3 ----	6.3 ----	6.1 ----	7.0 ----	6.9 ----
Selling Into New Markets	6.0	6.0 ----	5.6 ----	5.8 ----	6.2 ----	6.9 ----
Strategic Knowledge	5.8	5.8 ----	4.5 -C-	6.7 -B-	5.6 ----	6.6 ----
Raising Capital	5.3	6.2 -b-de	4.6 a---	5.1 ----	4.5 a---	4.1 a---
Linkages - Networks and NIY Participants	4.2	4.4 ----	3.8 -d-	4.1 ----	4.6 -b-	3.9 ----

Direct Impact Scores of the NIY Program Segmented by
Companies' Research or Development Expenditures

	Mean	Research or Development Expenditures				
		A. <10%	B. 10-29%	C. 30-59%	D. 60-89%	E. 90% or more
Mean	5.7	4.8 -b-de	5.8 a---	5.6 ----	5.9 a---	6.3 a---
Leadership or Governance	6.7	6.3 ----	6.5 ----	6.4 -d-	7.5 -c-	6.7 ----
Business Planning	6.4	6.3 ----	6.5 ----	6.3 ----	6.1 ----	8.1 ----
Selling Into New Markets	6.0	4.4 ----	5.9 ----	6.3 ----	5.8 ----	6.3 ----
Strategic Knowledge	5.8	5.0 ----	6.1 ----	5.6 ----	5.7 ----	5.8 ----
Raising Capital	5.3	3.8 ----	5.2 ----	5.0 ----	6.2 ----	5.8 ----
Linkages - Networks and NIY Participants	4.2	3.1 ----	4.4 ----	4.2 ----	4.2 ----	4.2 ----

Direct Impact Scores of the NIY Program Segmented by
Mentoring by Tekes Advisor

	Mean	Mentoring by Tekes Advisor			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	6.3	5.3 ---D	5.8 ---D	6.3 ---D	7.9 ABC-
Leadership or Governance	7.7	6.7 ---d	7.3 ---d	7.5 ---d	9.5 abc-
Strategic Knowledge	6.9	4.2 ---cD	6.7 ---	6.9 a--d	9.0 A-c-
Business Planning	6.6	5.8 ---	5.8 ---	6.9 ---	8.0 ---
Selling Into New Markets	6.4	5.8 ---	5.6 ---	6.9 ---	8.0 ---
Raising Capital	5.7	5.0 ---d	5.0 ---d	5.3 ---	8.5 ab--
Linkages - Networks and NIY Participants	4.3	4.2 ---	4.4 ---	4.2 ---	4.5 ---

Direct Impact Scores of the NIY Program Segmented by
Participation in Other Tekes Programs

	Mean	Participation in Other Tekes Programs			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	6.3	6.1 -b--	7.2 a--d	6.1 ---	5.9 -b--
Leadership or Governance	7.7	7.3 ---	8.8 ---	8.0 ---	7.1 ---
Strategic Knowledge	6.8	6.6 ---	8.3 ---	7.0 ---	5.5 ---
Business Planning	6.6	6.6 ---	6.3 ---	7.0 ---	6.5 ---
Selling Into New Markets	6.4	6.3 ---	7.5 --c-	5.5 -b--	6.3 ---
Raising Capital	5.7	5.5 ---	6.7 ---	5.0 ---	5.8 ---
Linkages - Networks and NIY Participants	4.3	4.0 -b--	5.4 a---	4.0 ---	4.2 ---

Direct Impact Scores of the NIY Program Segmented by
Contact with either Public or Private Investors

	Mean	Assistance with Public or Private Investors			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	6.3	5.8 --C-	5.7 --C-	7.2 AB--	6.9 ---
Leadership or Governance	7.7	7.1 ---	6.9 --c-	9.1 -b--	8.3 ---
Strategic Knowledge	6.9	5.7 --c-	6.8 ---	8.1 a--	6.7 ---
Business Planning	6.6	6.1 ---	6.5 ---	6.9 ---	7.5 ---
Selling Into New Markets	6.4	7.1 ---	5.4 --c-	7.5 -b--	5.8 ---
Raising Capital	5.7	4.6 --d	4.8 --d	6.6 ---	9.2 ab--
Linkages - Networks and NIY Participants	4.3	4.3 ---	4.2 ---	4.6 ---	4.2 ---

Direct Impact Scores of the NIY Program Segmented by
Assistance with Investor Presentations

	Mean	Assistance with Investor Presentations			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	6.3	5.3 --CD	6.1 ---	6.9 A--	7.1 A--
Leadership or Governance	7.7	7.0 ---	7.5 ---	7.9 ---	8.8 ---
Strategic Knowledge	6.9	5.6 ---	7.0 ---	7.5 ---	6.9 ---
Business Planning	6.6	5.0 ---	7.0 ---	6.3 ---	7.5 ---
Selling Into New Markets	6.4	6.0 ---	5.8 ---	7.9 ---	6.9 ---
Raising Capital	5.7	3.5 --cD	4.8 --cd	7.9 ab--	8.1 Ab--
Linkages - Networks and NIY Participants	4.3	4.5 ---	4.5 ---	3.8 ---	4.4 ---

Direct Impact Scores of the NIY Program Segmented by
Contact with Business Advisors, Accelerators, or Board Members

	Mean	Contacts with Business Advisors, Accelerators, or Board of Director's Members			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	6.3	5.2 --CD	5.9 --Cd	7.7 AB--	7.2 Ab--
Leadership or Governance	7.7	6.6 --Cd	7.1 --c-	9.6 Ab--	8.8 a--
Strategic Knowledge	6.9	5.4 --C-	6.5 --c-	9.2 Ab--	7.5 ---
Business Planning	6.6	5.6 --C-	6.1 ---	8.3 A--	6.9 ---
Selling Into New Markets	6.4	5.9 ---	5.8 ---	7.1 ---	8.1 ---
Raising Capital	5.7	4.1 --c-	5.4 ---	7.5 a--	6.9 ---
Linkages - Networks and NIY Participants	4.3	3.8 ---	4.3 ---	4.6 ---	5.0 ---

Direct Impact Scores of the NIY Program Segmented by
Type of Support

	Mean	Type of Support			
		A. Funding	B. Other	C. Both funding and other support	D. Neither funding nor other support
Mean	5.7	5.5 --C-	5.8 ---	6.3 A--	5.2 ---
Leadership or Governance	6.6	6.2 --C-	8.8 ---	7.6 A--d	3.8 --c-
Business Planning	6.4	6.3 ---	7.5 ---	6.5 ---	7.5 ---
Selling Into New Markets	6.0	5.9 ---	6.3 ---	6.4 ---	5.0 ---
Strategic Knowledge	5.7	5.3 --C-	6.3 ---	6.9 A--	5.0 ---
Raising Capital	5.3	5.0 ---	3.8 ---	5.9 ---	6.3 ---
Linkages - Networks and NIY Participants	4.2	4.2 ---	2.5 --c-	4.5 -b--	3.8 ---

Use of the NIY Program Support Initiatives Segmented by
Degree of Use of Funds for Concept Development

	Mean	Concept Development			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	3.2	3.3 ---	3.4 ---	2.3 ---D	4.2 ---C-
Mentoring by Tekes Advisor	3.8	3.1 ---	3.5 ---	3.5 ---	4.7 ---
Assistance with Investor Presentations	3.3	3.1 ---	4.0 ---	2.1 ---d	4.4 ---c-
Assistance with Public or Private Investors	3.1	3.8 ---	3.0 ---	1.7 ---D	4.7 ---C-
Contacts with Business Advisors, Accelerators, or Board of Director's Members	3.0	2.5 ---	3.5 ---	2.1 ---	4.2 ---
Participation in Other Tekes Programs	2.7	3.8 ---	3.0 ---	2.1 ---	3.0 ---

Use of the NIY Program Support Initiatives Segmented by
Degree of Use of Funds to Strengthen Human Resources; Improve Internal Processes

	Mean	Strengthen Human Resources; Improve Internal Processes			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	3.2	- ---	2.1 ---D	3.0 ---	3.8 ---B-
Mentoring by Tekes Advisor	3.8	- ---	3.0 ---	3.3 ---	4.6 ---
Assistance with Investor Presentations	3.3	- ---	2.5 ---	3.1 ---	3.7 ---
Assistance with Public or Private Investors	3.1	- ---	1.5 ---	3.5 ---	3.3 ---
Contacts with Business Advisors, Accelerators, or Board of Director's Members	3.0	- ---	1.0 ---d	2.7 ---	4.0 ---b-
Participation in Other Tekes Programs	2.7	- ---	2.5 ---	2.3 ---	3.3 ---

Use of the NIY Program Support Initiatives Segmented by
Degree of Use of Funds to Acquire Additional Capital

	Mean	Acquire Additional Capital			
		A. Did not use	B. Low degree of use	C. Moderate degree of use	D. High degree of use
Mean	3.2	2.0 --CD	2.5 --cd	3.8 Ab--	3.8 Ab--
Mentoring by Tekes Advisor	3.8	3.5 ---	2.5 ---	4.4 ---	4.7 ---
Assistance with Investor Presentations	3.3	1.5 --c-	2.8 ---	4.2 a--	3.8 ---
Assistance with Public or Private Investors	3.1	1.5 ---	2.2 ---	4.2 ---	3.8 ---
Contacts with Business Advisors, Accelerators, or Board of Director's Members	3.0	1.5 ---	2.8 ---	3.6 ---	3.4 ---
Participation in Other Tekes Programs	2.7	2.0 ---	2.2 ---	2.8 ---	3.6 ---

Appendix F: Additional ‘Other’ Responses to Questions

The NIY Program Service Offerings - ‘Other’

- Tekes-Finnvera relationship and network
- Consults to support go-to-market steps

NIY Use of Funds – ‘Other’

- Acquiring strategic advisory
- Market development / implementation of go-to-market strategy
- External marketing services
- Strengthening of marketing activities via service providers
- Market analysis and expertise
- Marketing literature etc.

Companies’ Industrial Sector - ‘Other’

- Financial Services
- Analytics for i) Water ii) Environment iii) Energy, iv) Food chain and v) Medical
- Design brand
- Security and safety solutions

Customers’ Industrial Sector - ‘Other’

- | | |
|---|--|
| • Consumers | • Public Safety and Security Authorities |
| • Financial sector | • Finance (Insurance) |
| • Retail | • Finance and Banking |
| • E-commerce retail | • Retail and Wholesale |
| • Law enforcement, NGOs, Ministries | • Retail, public sector etc. many different sectors |
| • Automotive | • Higher Education |
| • Consumer business in food sector | • Individual households |
| • Finance, Travel et al | • Property owners |
| • eCommerce | • We have over 200 customers from all kinds of industries. |
| • Services (or products) for i) Water ii) Environment iii) Energy, iv) Food chain and v) Medical businesses | • Consumers |
| • Mainly sport & fitness | • Education |
| • Retail | • Automotive industry |
| • Waste management, food industry | • Agriculture, fertilizing |

Appendix G: Qualitative Interview Responses Grouped by Theme

Theme	Literal Responses (translated from Finnish to English)
Support offered to participants	<ul style="list-style-type: none"> • The program gave new potential business ideas. • The program gave possibilities of different kind of experiments. • The program encourages doing new things. • Essential effect. The program made the business possible and also the existence of the company. • Important effect on the existence of the company. • Gave faith to do more aggressive export and marketing. • Extremely important. The program gives support (sparring) and possibilities to develop business. • TEKES is a diamond. • TEKES is super. • It is good that there is an organization like TEKES in Finland. • Satisfied with the program. • There are only positive things to say about the program. • They are proud that they are in the program and very satisfied with the program.
NIY Program structure	<ul style="list-style-type: none"> • The best TEKES program because the expense structure corresponds the reality. • Tight application processes at the beginning of the program was good because it required very exact plans. • The application process was easy. • The program is really bureaucratic. You have to use TEKES language, you need time management from everybody where you have to tell what you have done, to whom you have done and why you have done. If you have too many working hours the system does not work. • At the beginning of the program the selection process was not developed. • The panel was very good and made it possible to participate to important meetings. • The phases inside the program are good because it eliminates unnecessary details. • Meetings with TEKES were good because outsiders ask good questions.

- The way of doing things in TEKES is different as in other organizations.
- TEKES has clear processes and good ways of doing things.
- It is really important to decrease the bureaucracy. Some companies even hire consultants to prepare and manage the programs.
- It is difficult to evaluate or measure the progress of the company during the program. The international partner of the company went bankrupt and it slowed the progress and according to TEKES the company has failed in the program. Fortunately, it was possible to clear up things in the meeting with TEKES.
- It was easy to work with the contact persons at TEKES. The common theme was possible to find immediately.
- The co-operation with TEKES was good.
- Company's board and investors have their own perspectives and TEKES has its perspectives. The company has to balance between these different perspectives.

Provision of funding

- The program (and especially the given amount of money) has had some effects in the company, but partly the progress was done before the program.
- The program made it possible to invest in exporting, hire new employees to the sales department. A really big effect!
- The program has impacted us a lot. Extremely important at the beginning of the company because during that time many investments had to be done. Without the program it would be impossible to do those investments.
- Very important funding.
- Economical. New companies have little money
- The program supports internationalization differently than earlier TEKES programs. The funding should be spent on international things, not on national unimportant things.
- The funding was big enough.

Enabling of market expansion

- Essential effect in internationalization of the company. It has guided internationalization and risk management in financing.
 - Very strong effect on export efforts
 - The program encouraged internationalization.
 - Really important in the beginning of the company. At first it was difficult to grow but then the company's growth was 200 per cent. It is possible that this would have not happened without TEKES. The program made to internationalize faster.
 - The program made it possible to do really big things abroad. It made it possible to hire top experts which made it possible to take steps in the USA.
 - Positive effects are now seen in sales.
 - Because of the program the company is again participating on the trade fairs.
 - The company's network has been enlarged because of the program.
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Appendix H: The Evidence Network Principals

Brian Barge, President & CEO, The Evidence Network

Brian has served as President & CEO of three leading innovation intermediaries in Canada. He led CMC Microsystems (2000-2006) in its provision of advanced tools, technologies and services for microsystems research and innovation at universities across Canada, the Ottawa Economic Development Corporation (1996-2000) in support of the growth of Ottawa's economy, and the Alberta Research Council (1991-1996) in the development and commercialization of technology. Over his 40-year career in innovation management, often in a global context, Brian has forged numerous innovative initiatives among universities, industries and governments that have stimulated the formation and growth of countless technology-intensive firms. His leadership in assessment of the impact of innovation intermediaries was stimulated through needs identified during his service on the Board of Directors of over 15 innovation intermediaries operating across diverse sectors, including those responsible for research and technology development, research park and incubator administration, health research translation, high performance computing, and regional economic development. He has served on the Alberta Premier's Council on Science and Technology, the Ottawa Heart Institute Foundation, as Chair of the Association of Provincial Research Organizations, and Vice Chair of PRECARN. Brian began his career as a scientist with the ARC, and established international prominence in the field of radar meteorology. He has degrees in honors physics (BA, University of Saskatchewan) and meteorology (MSc, PhD, McGill).

Margaret Dalziel is Associate Professor of Entrepreneurship and Innovation at the Conrad Centre for Business, Entrepreneurship and Technology at the University of Waterloo, and VP Research, The Evidence Network (TEN).

Margaret joined the University of Waterloo in 2013 from the University of Ottawa, where she was Associate Professor at the Telfer School of Management. She joined Telfer in 2001 with 15 years experience in technology development and research management in the private sector, with the Canadian Space Agency, and with the Faculty of Engineering at McGill University. Margaret teaches courses in technology entrepreneurship, and conducts research on inter-organizational relations focusing on innovation intermediaries and the structure of the economy. She has produced over 100 articles and has served on expert panels sponsored by the Council of Canadian Academies, the Prime Minister's Advisory Council on Science and Technology, and Statistics Canada. Margaret holds degrees in business (PhD, UQAM; MBA, McGill), computer science (BSc, McGill), and music (ARCT, Royal Conservatory of Music of Toronto).