

How are the differences of the perceived values of the firms on services provided by Business Incubators and those of Industry Gardens? Considerations for promoting those values.

Hvordan er forskjellene i selskapets oppfattede verdier på tjenester levert av Business Inkubatorer og Næringshager?

Hensyn for å fremme disse verdiene.

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Method – Quantitative method, Cronbach’s Alpha analysis, and Regression analysis

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Preface

Writing thesis for master is very challenging for me. I imagine that I am swimming in the sea alone. But, whenever I disappear the direction, I get the help from my supervisor, Jarle Aarstad, who I must thank a lot. Maybe I send the message to him from the sea and he send back me the suggestion as soon as possible. After that I swim again, again and again. Try my best forever is my words. Without his help it is very difficult to reach the beach. Now, right now, when I am writing this preface is almost close to the beach of delivery time. I believe that I have done good effort for my paper whatever difficulties.

Writing master thesis shapes me to have capacities to find out necessary skills to do required tasks which are planned by myself. So, I think this writing task improves my capacities in many things in many areas of a study. At the same time, the fact that how wide of longitude someone should extend in the specific area is also very important for a researcher. Limitation for the getting knowledge, catching the idea clue turning up in the brain suddenly, combining the context between one to another thing, noticing the pattern of the data and information, inferring by analysing the pattern of data and operation, many, many, things are included to consider, perform and write. Almost for 6 months, I have learnt a lot from writing thesis. From my searching many things I could not use, somethings I could use in this thesis. Trial and error is a method we will experience in our learning process all the time. I am very pleased and proud of getting opportunity to write this thesis. In my life, this is a milestone. Finally, I say again. I really appreciate to Jarle.

1 Introduction

1.1 Abstract

In Norway, there are a lot of business companies and the institutions that help the companies by providing necessary facilitations and mentoring so that those companies can operate effectively, survive, and get growth in the future. The companies including the established and start-ups firms get the services from the institutions, Business Incubators, and Industry Gardens. This research will try to find out especially the differences between the perceived values of companies affiliating to Business Incubators and those of Industry Gardens on the services provided. It will analyze how and why those differences are occurring and the impact of those differences, but at the same time the similar values and total values of both are viewed as well if those are sufficiently stimulating to be evaluated and analyzed. So, it can be said that the research is approaching from demand side of services and analyzing on the same level, that is, firm level, not institution level. The paper will use only the quantity method for this study by using survey data and report carried out by SIVA in 2017. Based on all those findings, the paper will try to contribute the considerations for improving these services and perceived values as much as possible from different aspects and perspectives. In my view, it is firmly believed that the results of these efforts will fulfill the facts, thinking and suggestions to the required area of Norwegian business world one or another way beneficially.

Key words for Library search – Incubators, Industry Garden, perceived values, services, investors, network, research and education, profitability, survivability, innovation, Regression analysis, Cronbach's alpha analysis, quantitative method, absorptive capacity, dynamic capacity, customers, suppliers, market.

1.2 Why do Start-up firms need the facilitation from the umbrella institution?

Establishing a company is very interesting event and big part of the life for the people. It is exciting by giving tremendous hope and dream, simultaneously it gives risk as well. Is it easy? No, it does not. It is quite challenging, demanding and at the same time it is sensational for those people who establish with having dream and expectation for the wealth. But it is not impossible either. It can be implementable, and reachable to success as well. How will this big scenario be brought into their lives of those people or group of people? Such people who

would like to establish start-up firms are entrepreneurs. Even though they have firm enthusiasm, they are inexperienced, and their start-up firms have uncertainties considerably.

So, they cannot perform that challenging task alone, and they must be cooperating with others and must take the essential assistance from the institutions which can provide them financial assistances and invaluable instructions or suggestions so that they could be able to focus in order to perform their core task effectively. Indeed, they need such helps from those organizations because they are still under the risky and vulnerable situation. By this way, start-up will survive in the beginning phase and later they will be innovative, establish realistic ambitions for growth and be successful in achieving such growth if they have strong commitment and effective effort.

1.3 The main purpose of this research

In Norway, there are two institutions, Business Incubator, and Industry Garden, trying to help the start-up firms and established firms which are still struggling for survival, further development, and success. “These two institutions are supervised by the SIVA owned by Norwegian Ministry of Trade and Fishery. There are 39 Business Incubators and 47 Industry Gardens are affiliating with SIVA in 2016. Those 39 Business Incubators are facilitating to the 785 firms and those 47 Industry Gardens are facilitating to the 1127 firms.”(Jakobsen, 2017, pp. 4-6) The aim of this research is to analyze differences between how they perceive the quality of services provided by respective institution. So, the research question or problem statement will be:

“How are the differences of the perceived values of the firms on services provided by Business Incubators and those of Industry Gardens?”

Finally, by finding out these things, analyzing the differences and drawing reasonable conclusion based on the analysis the research can contribute in some extent in finding continuously out the factors which can play important roles in survivability, innovation, growth of these firms and the strategic approach of these institutions as well. So, the research will contribute the considerations for the promoting of those services and perceived values.

Even though it can be said generally that those both two are facilitating those start-up firms and still struggling firms to achieve, the former one, Business Incubators are mostly facilitating to the start-up firms and the latter one, Industry Gardens are facilitating to the

existing companies. These two institutions have some same intentions and at the same time some different aims as well.

The important differences are: 1. Entrepreneurs of start-up firms affiliating to Business Incubators have some special challenges, since they have limited resources, capabilities, experience with the particular entrepreneurship project, both on individual and organizational side, especially if the degree of novelty and uncertainty and the project are large. Furthermore, entrepreneurs often lack the legitimacy and visibility of potential interest groups, and often lack the right network resources for suppliers, customers, research environments, etc. (Aarstad, Pettersen and Henriksen 2016) 2. The establishment of Industry Garden program is related to the particular challenge that businesses in rural areas can have. As for the newly established incubator companies, there may be a lack of networks of capital. The regional system does not stimulate growth and development to a sufficient extent. Here, it is expected that the companies to a greater extent have international ambitions and that they rely to a greater extent on research-based knowledge. The industry gardens are also meant to play an important role locally and regionally, but the level of ambition on the said dimensions is less. Both programs emphasize business consulting and working within network to strengthen the firms, however the means they are working with those measures are influenced by facility and objectives of the two programs. (Jakobsen, 2017, p. 18_19) Further details can be seen in section 1.4.3 and section 2 as well.

1.4 Literature review

1. Midt-term evaluation of SIVA's Business Incubator Program and Industry Garden Program. (Jakobsen, 2017)

This is a research report and main literature in this research. Like previously mentioned, there are 2 institutions which support the start-up and some established firms to carry out their activities to be survive themselves later and become successful ones finally. These two are: 1. business incubator and 2. industry garden. SIVA supports those two institutions financially and its role is the owner to these two institutions, Business Incubators, and Industry Gardens.

Key words – Business Incubators, Industry Garden, innovation, innovative process, entrepreneurial firms, growth ambition, Start-up, established companies, survivability,

business understanding, customers, suppliers, network, research and education institution, investors, investor's capital, financial supports, market's competence, competition, competitors, turnover, international market, economic outlook, affiliation, operation, co-operation, complementarity, profitability, technological and marketing advices, target, plan, region, national, product, services.

1.4.1 Why is it chosen to write literature review?

This report is chosen as a main literature in this research because it can analyze the development of the start-ups and experienced companies running in their operation in our country, Norway by using the survey data carried out by SIVA and those are mentioned in this report. By using the data and factors from this report the research will be able to carry out research aim – that is - **to find out the differences between those two types of firms' perceived values on the services provided by those two institutions respectively.** This point is still **a literature gap in this research area.** This task has not been done yet. This research uses chiefly these datasets to find out the above-mentioned research aim and that is why this report is chosen to be done literature review.

1.4.2 What are the findings of main literature and its literature gap?

1.4.2.1 Finding about main theory of the SIVA report, main literature.

SIVA – SIVA is a national program operator to the Business Incubators and Industry Gardens. It also includes an assessment of the program owner's roles (the Ministry of Trade and Fisheries (NHD), the Municipal and Modernization Department (KMD), the Ministry of Agriculture and Food (LMD) and the county of municipalities.) SIVA contributes 3 elements: grant, competence and network. (Jakobsen, 2017, p. 17)

The concept of SIVA is “We are present across the whole country, stimulating employment, business development and viable local communities.” (siva.no)

The vision of Business Incubator program is to create tomorrow's competitive businesses. The main aim is to increase value creation through by identifying, developing further, and commercializing good ideas of new firms. In addition, to stimulate the new things in established firms. (Jakobsen, 2017, p. 1)

Industry Garden program has two main objectives: << contributes to value creation by facilitating the development of attractive businesses and knowledge workplaces across the

country, but preferably in the districts >> and <<be an instrument for the counties and help strengthen the county's role as a regional development actor>>.(Jakobsen, 2017, p. 1)

1.4.2.2 Finding about findings of the research of main literature

“1. The method of analysis that has been developed seems to be useful for measuring socio-economic effects of the initiative. However, analyzes of longer time series are required, as well as a quality improvement of the baseline data.

2. Developments over timer are positive for companies associated with Industry Gardens and Business Incubators compared to comparable companies.

3. The value creation in companies associated with Industry Gardens/ Business Incubators is higher than for comparable companies after three years. (Value creation is defined as the sum of labor costs and operating results in the companies. On average, value creation in 2014 was around NOK 100,000 higher in companies related to industry gardens (92000) and business incubators (102000) than comparable companies. However, it is lower in the first few years, which can be related to the rationale behind the initiatives, that is that one should build competence and capabilities in companies and that one cannot expect immediate success. Especially within the business incubator program, there are many immature companies that will have very low turnover and low labor costs in the first few years (which also provides low value creation.)”(Jakobsen, 2017, pp. 93-94)

1.4.2.3 Finding about literature gap

In this report, main literature, comparison between companies associated with Business Incubators, Industry Gardens and comparable companies that are not associated with those two institutions and those companies have other same characteristics for examples product or service, age of companies or branches. In addition, in 2019, Daniel Isdal Furset Håkon Kløve-Graue Lavik carried out the research whose name is “The Perceived value of Business Incubator Services - A comparative study of incubator leaders and start-ups in Norway”. In that research, they made the comparison within the Business Incubator itself, that is between companies' leaders and institution leaders. (Daniel Isdal Furset, 2019)Therefore, the comparison between the companies associated Business Incubators and those of Industry Gardens are not yet done. So, it is the literature gap in this research area and consequently this research tries to fulfill this gap.

1.4.3 Some basic concepts and codes

Definition of Business Incubator – ‘An incubator an adapted environment in which knowledge-based companies are established during the start-up and, providing professional advice, access to competence network and rent/ service functions at a cost adapted to the company’s financial ability.’ (Jakobsen, 2017, p. 12)

Definition of Industry Garden – ‘The purpose of the Industry Garden is to stimulate the development of new jobs within knowledge-intensive industries in the districts, by providing infrastructure and developing environments to people with high competence. By facilitating co-location and synergy effects, the goal is to create development opportunities in the districts for individual and businesses that today experience marginal environments and little stability.’(Jakobsen, 2017, p. 14)

When we see the aims of these two types of institutions, Industry Garden focus more on district inside the country and so it has less ambition in international market. But, in both type of institutions, companies affiliating or co-location within the area of headquarter or office of the Business Incubators and Industry Garden achieve their objectives more and survive and get growth more than companies which does not place in these area. According to the survey data of this report, more mean values of companies affiliated Business Incubator are better than those of Industry Garden.

BI – Business Incubator, IG – Industry Garden (This is definition of code. It is necessary to mention because these two words can be very often used in the paper and it will use these two codes – BI and IG)

Institution – Word ‘Institution’ refer to BI and IG in this report.

Environment – Word ‘Environment’ refer to Research and Educational Environment.

1.5 How does comparison lie between those two types of companies and how will this comparison be done and analyzed?

Therefore, we can say that the comparison lies between the start-up firms of the Business Incubators and established firms of the Industry Gardens. Here, it can apparently come up a challenging question if it is comparable between those distinctly phase difference companies and then, how to find the comparable common factors will become the demanding task. But we use the same question set in this research which these two different types of firms respond, and the factors included in these question sets, and answers will be set to be comparable common factors or variables. In the total question set, there are 5 major question

sets and only 3 of 5 have sub-questions under each. Question q3_1 including 10 sub-questions q3_1_1 through q3_1_10, q4_1 including 16 sub-questions q4_1_1 through q4_1_16 and q5_1 including 12 sub-questions q5_1_1 through q5_1_12. Those 3 questions group has 38 sub-questions and question q6_1 and q7_1 do not have sub-questions and so it will be 40 questions totally. This research will use the answers of the firms on those 40 questions as variables when it analyzes the dataset. The answers are given by the 332 Business Incubators' companies and 495 Industry Gardens' companies. The paper will use these answers to find out the comparison of the perceived values of the firms on the services provided.

2 Theory

Here, it is necessary to present theory section because if the readers know the background theory about Business Incubator and Industry Garden, they can comprehend contextually more about the services provided to the respectively affiliated firms how and why. In addition, the paper included the notion about absorptive capacity of the firms so that it could be supported to explain more about the paper's analysis and drawing conclusion.

2.1 Theory about Business Incubator

Generally, we can say that these two institutions have many similar things by which they support to the firms. There are, however, some differences as well. In this theory presentation part about business incubator, the paper first mentions international literature about business incubator and after that business incubator with Norwegian context will be stated.

2.1.1 Basis idea about Business Incubators from International literature

Among the international literatures about Business Incubator, firstly the definition from the United States is mentioned. The current definition of "Business incubator" adopted by the U.S. National Business Incubation Association (2003) is as follows.

"A business incubator is an economic development tool designed to accelerate the growth and success of entrepreneurial companies through an array of business support resources and services. The goal of business incubator is to produce successful firms that will

leave the program financially viable and freestanding.”(Chien-Chi Tseng, 2011, p. 32)
(http://www/nbia.org/resource_center/best_practices/index.php)

Another definition about Business Incubator from International literature is European Commission’s one is as follow.

“European Commission (EC, 2002). A business incubator is an organization that accelerates and systematizes the process of creating successful enterprises by providing them with a comprehensive and integrated range of support, including: Incubator space, business support services, and clustering and networking opportunities. By providing their clients with services on a ‘one-stop-shop’ basis and enabling overheads to be reduced by sharing costs, business incubators significantly improve the survival and growth prospects of new start-ups. A successful business incubator will generate a steady flow of new businesses with above average job and wealth creation potential. Differences in stakeholder objectives for incubators, admission and exit criteria, the knowledge intensity of projects, and the precise configuration of facilities and services, will distinguish one type of business incubator from another (p. 9).”(Bruneel, Ratinho, Clarysse, & Groen, 2012, p. 111)

2.1.2 How does Norwegian define the Business Incubator?

In this part, it will be described about the definition of Business Incubator with Norway context.

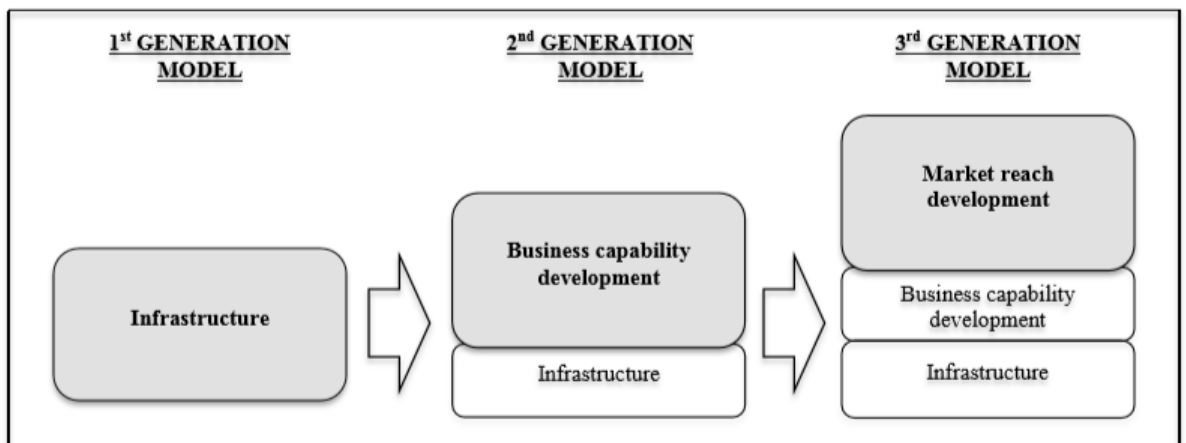
“An incubator is an adapted environment in which knowledge-based companies under the establishing and start phase are given professional advice, access to expertise network and rent/service functions at a cost adapted to the company's financial ability. This is definition of Business Incubator when incubator program started in Norway in 2000 according to the parliament’s proposition Nr.1(1999-2000). ”(Jakobsen, 2017)In 2012, the incubator program is modified to the common incubator program with the name as “New national incubator effort 2012-2022”. The vision of this program is “to create tomorrow's competitive businesses.” The main goal of the program is to increase national value creation by identifying, further developing, and commercializing good ideas for new established companies. It should be stimulated to new donors in established businesses. The target group is strong innovation environments where incubation is an essential activity and the environments will focus on both innovation and further development of existing businesses. It is also expected that incubators will have close links to relevant business and relevant research and educational environments *ibid*.

The definition of Business Incubator of Norwegian context is in line with international literature. The nature and essence are generally the same.

2.1.3 The generation of the Business Incubator

“Incubators in the first phase (1960s-1980s) had a rather simple value proposition of offering infrastructure (e.g. office space and shared resources) and leveraging economies of scale (Barrow, 2001; Lalkaka and Bishop, 1996). The second phase (1980s-1990s) was marked by the introduction of knowledge-based services. Incubators were offering training and coaching that would accelerate the incubatee’s learning curve (McAdam and McAdam, 2008). Moreover, incubators became a popular economic development tool used by governments to promote the creation of new technology-based companies (Lewis, 2001). The third and the most recent phase started in the late 1990s, when incubators expanded their services to the systematic provision of links to the external stakeholders and legitimacy. The networking support facilitates access to technological, professional, and financial agents which would otherwise not be within reach of the new ventures (Bruneel et al., 2012).“
(Mrkajic)

Evolution of incubation models in developed countries (e.g. see Bruneel et al., 2012).



In Norway, both Business Incubators and Industry Gardens are these three kinds of facilitations which are infrastructure, business capability developments and market reach development with many similar means and something different ways as well.

2.1.4 The types of business incubator

In this section, it will be stated the types of business incubators. “Hurley (2002) pointed out the advantages offered by the development of a facilities come from the

surrounding sponsors and provided a brief description for the different development types of business incubators.

Technology-based incubators. A source of research and development to grow the next generation of businesses. These facilities quite often are found in a university-based environment and a high-technology business setting.

Geography-based incubators. Located where they are because of where they are. A geographical edge exists often because of transportation issues. The crossroads of interstate highways, a site just from international boundaries, and the proximity to basis raw materials are just a few examples of why facilities are located where they are.

Economy-based incubators. A very popular type of facility where low-cost (often government subsidized), flexible square footage is available with shared services such as secretarial and distribution services as the principal benefits.

Supply-chain incubators. Unique to large company settings, often an economic development organization will establish a multi-tenant nearby to a major employer with the hopes of capturing the need for just-in-time suppliers. ”(Chien-Chi. Tseng, 2011, p. 32)

2.2 Theory about Industry Garden

There is not so much international literature about industry garden. Even though it is called as Industry Garden in Norway, this program functions one of the various kinds of Business Incubator like *Geography-based incubators* ibid. When international context is seen, in China there is such-like industry garden named as SUZHOU INDUSTRY GARDEN, not only it has regional development but that has also the aim attracting international investments and new technology more.(Lu Yuqi, 1999)

Industry Gardens in Norway assists to the affiliated firms many services like Business Incubators, but they focus more on the district like business incubator type 2, Geography-based incubators.

“Industry Garden program has two main objectives: << contributes to value creation by facilitating the development of attractive businesses and knowledge workplaces across the country, but preferably in the districts >> and <<be an instrument for the counties and help strengthen the county’s role as a regional development actor>>. The program will stimulate

both business start-ups and growth and value creation in existing companies. In both programs, industry garden and business incubator, there is a focus on strengthening both the regional, national and international networks of the companies.”(Jakobsen, 2017, p. 1)

2.3 The differences between Business Incubators and Industry Gardens program

There are some differences between these two types of institutions in theoretical background which can cause some significant differences in their performances and respective perceived values on services provided relating to the research question. So, we should see these theoretical background differences.

Business Incubator program has a particular focus on start-ups with growth potential and strong innovation environments, while Industry Garden program should include a broader range of companies and with a particular focus on promoting growth and development among companies in the districts (ibid).”¹(J. Stig-Erik., 2017) This fact is theoretically different background or strategic focus difference between these two institutions.

2.4 The concept of absorptive capacities

The paper includes the concept of absorptive capabilities because it plays important role significantly in the situation in which the companies or the manager and the employees of the companies try to bring the knowledge about companies’ working activities and technology transfer from the outside environment into the companies. The services provided by the institutions (IG/BI) are such knowledge. In addition, this concept is relating with open innovation concept as well. For the companies affiliating with Business Incubators and Industry Gardens, by having the high degree of absorptive capacities these firms can import services, knowledge and technologies effectively provided by the Business Incubators and Industry Gardens. So, it is reasonably explained that the perceived level of the companies on the services provided is contextually related with the absorptive capacities concept.

“The term was used by Kedia and Bhagat (1998) in the setting of technology transfer in between countries and they related it with the companies’ receptivity to the evolution of technology [2]. Cohen and Legenthal are the first authors to have given a concise definition and have constructed a more general theoretical framework for the application of the capacity of absorption in the business domain. The definition they gave is “the company’s ability to

recognize the value of a new external information, its assimilation and application in commercial purposes” [3]. (Cohen and Levinthal, 1990). This definition includes some very essential aspects. The first is the multidimensional aspect of the notion, including three fundamental capacities related to the newly discovered knowledge, namely: recognizing the value, assimilation and application.”(Feniser, Lungu, & Bilbao, 2017, p. 2)

“Lane and Lubatkin (1998) revises the definition of the capacity of absorption and defines it as: a company's ability to utilize external knowledge using three processes:

- Explorational learning: recognizing and understanding the knowledge of the outside environment that has potential to add value to the company.

- Transformational learning: the assimilation of valuable knowledge,

- Exploitational learning: using the knowledge assimilated in creating new knowledge and commercial results [5].”(Feniser et al., 2017, pp. 2-3)

The absorptive capacities concept will be used when the perceived values of the companies on services provided, to be compared, analyzed and the conclusion is drawn.

2.5 The synthesis of theory

In this part, it is required to describe about conceptual framework of this research. It means how and why the theories mentioned above, survey data that will be used and the raised research question are conceptually connected. It is considerably important and the heart of the research as well. First, the paper mentioned the theories about Business Incubator and Industry Garden. After that absorptive capacities concept is cited which can be relevant with companies’ perceived values on service provided theoretically. And this concept is relevant with open innovation and research and development investment of the company as well.

In the main literature, SIVA report, there is a literature gap about the comparison of differences of the firms’ perceived values on the services provided by the IG/BI. This literature gap will be filled by finding how and why the differences of the two firm’s perceived values on services by using above-mentioned theories contextually. So, the theories and concept mentioned are reasonably connected with research question, that is, “Finding out the differences between perceived values of the firms on services provided by Business Incubators and those of Industry Gardens”. In the next section, it is necessary to describe the method by which this research will use to find out what research question raises.

3.Method

3.1 Method Choosing

“Metodologi – som dreier seg om hvordan man kombinere ulike framgangsmåter og teknikker for å undersøke en bestemt situasjon. En metode betyr en planmessig framgangsmåte. Det betyr at når vi skal bestemme oss for en metode, må vi først ha klart for oss hva som er målet vårt. Hva er det vi ønsker å oppnå? I tillegg til hvilke beslutning vi står overfor valget av metode også ofte avhenge av hvilke ressurser vi har til disposisjon, både i form av tid og penger.”(Gripsrud, Olsson, & Silkoset, 2016, pp. 1-2)

According to the above-mentioned notion, the method we choose to use must be best suitable to solve this research problem statement. In addition, this method must be feasible in terms of accessibilities of time, human, financial resources. When we approach from the aspect of accessibilities of resources, in practical situation, it is quite difficult to get the interview respondents and even when I get these respondents, I do research alone and the research has a little manpower and short time to make questionnaire. So, I could not do qualitative method. Moreover, the research cannot be done by use of methods of triangulation of method (mix method of qualitative and quantitative) either. Even in the quantitative method, the research cannot use the self-collecting data through observation by using questionnaire and interviews like qualitative method. Instead, the research must use unavoidably only quantitative method by using secondary survey data according to the given situation. But it is not inappropriate one. The aim of my research is still suitable to use only quantitative method by using available SIVA's report (2017). Even though the research is being done under the very limited resources, this situation can lead to be able to pay more attention and focus on the use of the quantitative survey data by using quite enough time. On the one hand it may be viewed that it is negative, on the other hand it has positive point still.

So, this research will use only quantitative method using the secondary data sources, which is the survey data done by SIVA. So, it is essential to describe about theoretical background of the quantitative method using secondary data sources.

3.2 Quantitative Method and secondary data

The main characteristics of the quantitative data has the form of numbers of plain quantity in this age of big data. It is very expensive to collect the quality data in terms of money and time. But if the research uses secondary data, it can save those time and money a lot. So, when the research has large sample of population the data collection is very demanding and if possible, using secondary data is best. When the research is done with big amount of data, it is very important to make sense of the pattern of data and think the statistical context of those data and draw the statistical inference of those data. Briefly, it can be said that all quantitative researcher conducts two things: summarizing data and making inference about population based upon the collected data. (Mark Easterby-Smith, 2018, pp. 306-307)

But in not all quantitative research, the researchers collect the data themselves, in many times the researchers use the archive data which others collected before. That means they use the secondary data. By using this method, they do not need to use the longer time and expensive cost for data collecting but they must make sure that dataset are valuable ones, that is, that dataset has reliability and validity. Some research academics measure the quality of data in terms of robustness and efficiency. About quality of data will be discussed in next question more detail. This research will use this secondary survey data, and so it will be described about using it in the next section.

3.3 Using secondary data

Under the quantitative method using, the secondary data will be applied in this research. This secondary data is SIVA survey's data *ibid*. By using this secondary data, it can be saved the time and cost for data collecting and furthermore SIVA's survey data have validity and reliability with research question. It will be told about those a little bit later. Now, it is appropriate to describe the advantage of using secondary data generally.

““What are the advantages of using secondary data?”

If the research uses the secondary data, not only the researcher saves the time and money but also can save a lot of hard work for making questionnaires, looking for the

samples, interviewing, registering the data systematically. When we use the secondary survey data done by other researchers, we do not need to do such things again. So, the researchers can have more energy to focus their research aim with good concentration more.

“In management and business research, we often use data collected for archival reasons to undertake deductive research, often focusing on macro-level analysis. The biggest advantage of such data is its scale – there are hundreds, thousands, or even millions of observations we can use to test our hypotheses. Secondary data can be cross-sectional, meaning that we have data on observations made at one point in time, but it can also be longitudinal and be based on repeated observations of the same variables over long periods of time. In contemporary business research, the latter is almost always preferred because it allows for comparisons over time and enables research into dynamics such as the evolution of an industry ” mentioned, Hakan Ozalp, Lecture in Strategy at the Leeds University Business School.””(Mark Easterby-Smith, 2018, pp. 286-287)

The above-mentioned quotation is very relevant with the undertaking of this research in which we use the secondary data used for the other intention

3.4 Mean value, Cronbah’s Alpha analysis, Regression analysis

In this research we use mean values of the firms’ perceived values on the services provided by the institutions very often. Those mean values are got from the calculating average on the answers of the all sample firms. It cannot be compared directly the two types of unequal number of samples of the firms. Roundabout 490 of IGs’ firms’ and 310 of the BIs’ firms are got involved in the SIVA’s survey. So, the research took the mean of the all 40 variables of the answers of the firms. Mean value have quite good representation because calculating mean values considers all samples that got involved in answering each question. Here it is appropriate to mention the meaning of the mean and it is the following:

“**Mean** is a summary measure of location that uses all the values in the dataset in its calculation; the sum of all data points divided by the sample size.” (Mark Easterby-Smith, 2018, p. 313)

Cronbach’s alpha analysis

In this research, we use Cronbach’s alpha test to able to see how the answers of the firms are consistent in overall set of question. High coefficient of Cronbach’s alpha (more than 70%) shows that the data set has good consistency and it provides good scale of the reliability.

“Cronbach’s alpha analysis is a measure of internal consistency, that is, how closely related a set of items are as a group. It is a measure of scale reliability.”

<https://stats.idre.ucla.edu/spss/faq/what-does-cronbachs-alpha-mean/>

The detailed calculation of the Cronbach’s alpha is mentioned in the excel ark, Appendix A Ark2 and Ark3.

Regression analysis and hypothesis test

In this research, simple linear regression analysis is used very often and so it is described here briefly. Regression analysis and hypothesis test examine whether there is difference or relationship between two variables (independent and dependent) or not. In research methodology study area, the profession means that ‘relationship’ and the ‘difference’ is not the different. ‘It is very useful to remember that any hypothesis about differences between groups can also be expressed as a relationship involving the concept that underlies the group distinction.’(Mark Easterby-Smith, 2018, p. 320)

In regression analysis, hypothetical testing is used to confirm whether the difference or relationship exist between those two variables or not. If the statement is that ‘A’ is different from ‘B’ or ‘A’ and ‘B’ has relationship. Dependent variable B is plotted in X-axis and independent variable A is done in Y-axis in X-Y coordinate for one event. There are some events shaping the data location from which the regression line is drawn. The fact that the slope is significantly different from zero is examined. It is hypothetical analysis. Zero hypothesis ‘Ho’ does not accept this statement or slope(b_1) of these two variables is zero, $b_1=0$ that gives nothing correlation between these two variables. In such situation, there is no different or relationship between those 2 variables. Alternative hypothesis H_a defines the situation in which $b_1 \neq 0$ because (significant $p < 0.05$ together with T statistic is more than T critical value and high value of R-square (coefficient of determination) is at least 0.3 or more and so H_0 can be rejected. It leads to the conclusion that there is different or relationship between those two variables.

Univariate regression is a test of study hypothesis test in which dependent variable A on the y axis is explained by single variable B on the X axis.

Multivariate regression test is the hypothesis test in which dependent variable A on the y axis explained by more independent variables B, C, D, E on the X axis.

<https://www.youtube.com/watch?v=e7PtveMRMbs>

<https://www.youtube.com/watch?v=jGd2cj4K4Ww>

4. Presentation of empirical study

4.1 Consistency of the data are examined by Cronbach's Alpha

Before data analysis is done, consistency of the data is examined by the Cronbach's Alpha. When that analysis done, it is found that the BIs' firms' answers have consistency of data (seen in Appendix A, Ark2) with Cronbach's Alpha = 0.92 that is higher than 0.7. Cronbach's Alpha must have minimum 0.7 so that data of the answers will be consistency. It provides the BIs' firms' data have good reliability. Even though data consistency examination gives very good result for BIs' firms, IGs' firms does not get such result. The result of IGs' firms' data consistency analysis is almost 0.6 of Cronbach's Alpha value. (seen in Appendix A, Ark 3) It is a little bit less than 0.7 which is valid level of data consistency.

<https://www.youtube.com/watch?v=PCztXEfNJLM>

When the paper tries out to find out the reason of this event, some of the IGs' firms have answered question group q3_1, they did not respond other question group, that is, q4_1 and q5_1 group. It created that data consistency has less quality than it should be in IGs' firms.

4.2 Reliability and validity of this survey data

Validity is the expression of the data one collects, really applies to the topic/ problems the researcher is on. Reliability is similarly and expression of the data one collects are correct, ensure that the registration is done correctly with reliable instrument, and data must be repeatable. The value of the reliability is extent to which a measurement tool gives consistent results. Both reliability and validity are important and express how good research done. Validity of the data using in this research is very sure that, we develop the problem statement from the already existing secondary survey data. We did not develop the data after we have established the problem statement. So, the data using in this research are very relevant with

the research. Reliability of the survey data using in this research are repeatable by proving of SSB survey again on the same issue.

“Gir høyere verdiskaping – I midtveisevalueringen ble for først gang den økonomiske utviklingen til målbedriftene i næringshageprogrammet og inkubasjonsprogrammet sett opp mot sammenlignbare bedrifter som ikke har vært en del av Sivas programmer. Resultatene fra analysene viser at verdiskapingen i bedrifter tilknyttet Sivas programmer er høyere enn for sammenlignbare bedrifter etter tre år. Disse funnene har senere blitt bekreftet i en evaluering SSB gjennomførte i 2018.” <https://siva.no/siva-i-tall/>

Therefore, it is very sure that the survey data using in this research has good reliability. Cronbach’s alpha test shows that also it has quite good data consistency.

4.3 BIs’ firms’ scores of the answers on the questions are significantly better than IGs’ firms’ ones

There are 5 main question sets including 40 sub-questions. When the examination about how the differences between BIs’ firms perceived values on services provided and those of IGs’ firms is done with regression analyse, BIs’ firms’ ones are significantly better than IGs’ firms’ (seen in Appendix A, Ark 5). The factor described in each question is considered as variable and those total sett 40 variables are to be used in the data analysis. Some of these variables can be used directly as perceived values, for example, all of the factors from the sub-questions (q5_1_1- q5_1_12) under main question q5_1, q6_1 and q7_1 can reflect directly as perceived values on services provided by IGs and BIs. But the factors the sub-questions (q3_1_1- q3_1_10) under main question q3_1 and sub-questions (q4_1_1 – q4_1_16) under main question q4_1 do not pose the question about the services provided by IGs and BIs directly. Those total 26 sub-questions ask the firms about their performances working with other organizations and their opinion on their firms themselves. Even though the answers of the firms on those 26 questions are not perceived values on the services provided by IGs and BIs directly, these answers are responding to the variables most likely resulting from utilizing the knowledge getting from the services provided by IGs and BIs. And so, those 26 answers can reflect the perceived values indirectly of the both types of firms. All 40 variables are ratio-number level (Norsk – Forholdstallnivå).

This research is carried out by using only quantitative method and so it is assumed that it is needed to mention a little bit detail about doing regression analysis briefly. When the research carries out regression analysis, it uses 40 means of scores of BIs’ firms’ and IG’s

firms' answers on the questions reflecting the perceived values one or another way. In regression analysis, IGs' firms' answers are used as the independent variable and BIs' firms' ones are used as the dependent variables. Both variables are continuous ones of ratio-number level that leads to use appropriately the regression analysis and hypothetical test. (Thrane, 2018, pp. 59 - 64) Hypothetical statement is that "BIs' firms' perceived values are significantly different or better than IGs' firms' ones". 'Ho' => $b_1=0$ => No difference between BIs' firms' perceived values and IGs' firms' ones. 'Ha' => $b_1 \neq 0$ => It is accepted to reject 'Ho' and to confirm hypothetical statement. After regression analysis has done it shows that $R^2=0.865$ and T statistics (15.61) is far better than T critical value (2.02) which gives P value (significant F) 4.045E-18, and it gives $b_1 \neq 0$. That is why 'Ho' can be rejected and 'Ha' is accepted, and it is confirmed the statement that "BIs' firms' perceived values are significantly different or better than IGs' firms' ones." All regression explanation can be seen in Appendix A, Ark 5 ibid.

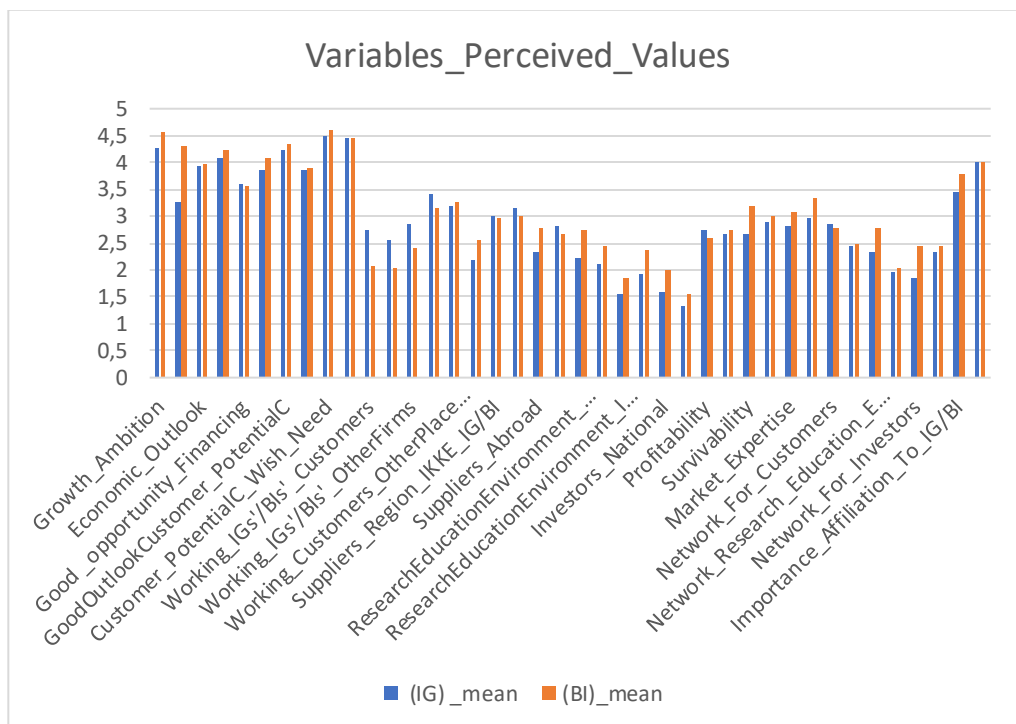


Fig (1) (more detail seen in Appendix A Ark 6)

4.3.1 In 29 of 40 sub-questions BIs' firms' perceived values are better than IGs' firms' ones

Among those 40 sub-questions, in 29 of them, firms affiliating to Business Incubators have better perceived values on service provided than Industry Gardens' affiliated firms. In just 11 of them, IGs' firms' perceived values are better than BIs' firms' ones. Table 1 is taken

from the (Appendix A Ark 7) and it describes the first 10 differences in order. In those first ten, in 7 of 10, BIs' firms' scores are better than IGs' ones and in 3 of 10, IGs' firms' scores are better than BIs' ones. BIs' firms are better in international marketing, networking to investors, research and educational related issues and survivability issues. On the other hand, IGs' firms are better in cooperating with customers, suppliers and other companies relating to IG than those of BIs' firms.

No	Question number	Which one is better than?	Difference	Question text briefly?
1	q3_1_2	BI	1,038675	Wishes International Market?
2	q4_1_1	IG	0,677556	Customer relating to IG/BI?
3	q5_1_11	BI	0,566093	Network for investors?
4	q4_1_2	IG	0,541734	Supplier relating to IG/BI?
5	q5_1_3	BI	0,516604	Survivability?
6	q4_1_11	BI	0,515311	Research and Educational Environment in the region?
7	q4_1_3	IG	0,479237	Other companies affiliating to IG/BI?
8	q4_1_9	BI	0,446536	Suppliers from abroad?
9	q4_1_15	BI	0,435728	Investors nationally?
10	q5_1_9	BI	0,424564	Network for Research and Educational environment.

Table 1.

This research will search how and why such things are happening that described in introduction part too. To do so, it is suitable that the questions fall under the same issue are grouped and studied parallelly with the first 10 significant difference variables (q3-1-2, through q5_1_9) (see – table1) because just the difference figures cannot provide any special interesting feature. The following issue-related groups will be formed and examined in this research.

1. International issue-related group
2. Networking issue-related group
3. Investors issue-related group
4. Survivability issue-related group
5. Research and Educational environment issue- related group

4.3.1.1 q3_1_2(Wishes - International Market) and International issue related group

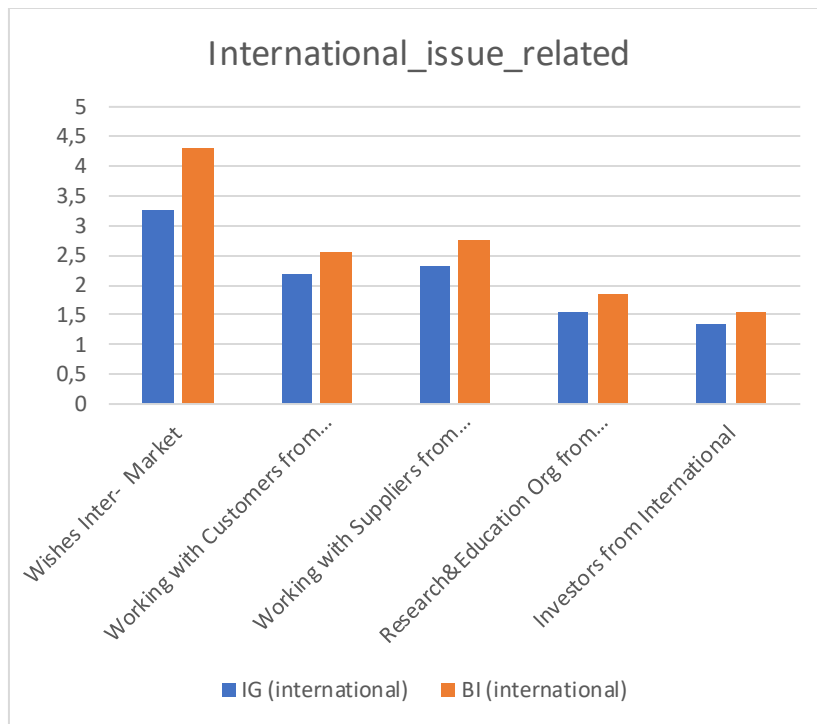


Fig (2) (more detail seen in Appendix A, Ark 8)

Among 29 perceived values variables on which BIs' firms are better than IGs' firms, 'We are willing to reach international markets' q3_1_2 has the highest difference (1,039) between these two types of firms. It is a **construct** that aroused good enough and should be studied and the relating issue is placed in the first one in grouping. Even though the difference on the q3_1_2(want to enter international market) is the highest among differences, it is not highest score of all firms' responses. It is fifth position in ranking of all scores.

Being highest difference of BIs' firms on q3_1_2 is caused by the small score of IGs' firms on it. All the responses of IGs' firms relating to international issue are smaller than BIs' firms' ones. The reason is probably that IGs' firms' focus is more concentrated on the district. Most possibly, international issue is not their focus area. The ambitions of the IGs' affiliated

firms are to understand the customers' wishes and needs, together with growth.(Jakobsen, 2017, p. 73)

It can also be considered that BIs' firms have quite high self-confidence upon their that statement, and they could believe their international potential (Nordic, European, US and Global). The existence of their wishes and self-confidence cannot be without reasons. They may have strong reasons to believe like that. Those can be as follows: the price and quality of their products or services are competitive in the international market, their marketing capacity is effective, and they know their international market of their product or services and their international competitor. Even though they have not possessed these competencies yet, probably they think they can develop or possess these capabilities soon. These things can be very possibly because the BIs' firms are more knowledge-based ones than IGs' firms and they may have a lot of potentials for such capacities. 69 % of BIs affiliated firms are knowledge-based companies and only 42% of IGs affiliated firms are knowledge-based ones.(Jakobsen, 2017, p. 72)

Another thing is to consider that among BIs' firms' perceived values, there are 2 variables having their means are more than 4.5. Those are: growth ambition (4.57) of q3_1_1, and "understanding our customers' or potential customers' wishes and needs" (4.62) of q3_1_9. It is very possibly that these two variables, especially growth ambition, raise the willingness of the firms to reach international market. Both types of firms have quite high growth ambition. Those high growth ambition can stimulate the firms to be innovative and that innovativeness will provide the means to firms to be able to perform specific. High growth and innovativeness are contextually connected and those can help the firms to reach international market for the BIs firms and getting to aware about customers' wishes and needs for the IGs firms. Trott meant that "companies that are seeking growth are more likely to be interested in innovation than those that are not. For those companies whose objective is to grow business, innovation provides a means to achieving growth."(Trott, 2017, p. 129)

Especially because BIs' firms have quite high scores in wishes to reach to international market and high growth ambition, it is possible to say that they have high export propensity. It is caused by the most of the BIs' firms are knowledge-based firms which points at that managers or leaders of the BIs' firms are well educated and prior knowledge to exploit the knowledge about the market or market relating issues from not only in the country but also other countries. This situation leads the BIs' firms have export propensity and will determine them to enter into the international market. Having export propensity can

encourage the firms' production more, better quality and services, competitive advantage, and appropriately demanding effort. Export propensity and production have closely related each other. After BIs firms have entered the international market they can manage export intensity as well very possibly, because their educational level is good enough to do so and education is very decisive in export intensity than entering international market. Productive firms have more export propensity, export intensity and these two cause firms productive more. (Panagiotis & James, 2012, p. 693) So it can be said that it is very good point for BIs' firms that those have high growth ambition and high wishes to enter into the international market.

Other questions under the international issue are: customers from abroad (q4_1_6) and difference is 0.385, suppliers from abroad(q4_1_9) and the difference is 0.447, research and educational environments from international (q4_1_13) and difference is 0.301 and investors from international (q4_1_16) and difference is 0.218. Regression analysis for this international issue shows that BIs' firms are significantly better than IGs' firms' ones. (see in Appendix A Ark8). In all other cases in international issue, the differences are very significant. The reason is possibly that highest difference in **'wishes to reach international market'** pushes high difference in other things of international issue area as well. The highest score(4.62) of q3_1_9(**Important to understand the existing customers' and potential customers' wishes and needs**) and second highest score (4.57) of q3_1_1(**Growth ambition**) among all 40 variables contextually stimulated q3_1_2 (wishes to reach international market) having high score (4.31) as 5th position of ranking among all 40 variables and it provides q3_1_2 of BI have big difference over counterpart of q3_1_2 of IG.

Accordingly, BIs' firms' scores for q4_1_6(working with customers for abroad-2.56) and q4_1_9(working with suppliers from abroad-2.77) shows that some BIs' firms have entered the international market by exporting or importing or international potential. Most possible by exporting.

Finding in this international related issue - BIs' firms are significantly different or better than IGs' firms.

Some BIs' firms have entered international market or international market potential.

4.3.1.2 q4_1_1(Working with Customers) Network issue related group

- 1.Working with customers relating to IG/BI (q4_1_1 through q4_1_16)
- 2.Network for customers (q5_1_7)

3. Network for suppliers (q5_1_8)
4. Network for research and educational environment (q5_1_9)
5. Network for the banks(q5_1_10)
6. Network for investors (q5_1_11)

In network issue, 16 variables of 16 sub-questions placing under main question q4_1(W Which of the following has your company been working with for the past three years?) are within network issue. But those variables are only representing the practical implementation of the firms with other organizations and sectors. Those variables are not the ones by which interviewer did not ask the questions about the services provided by IG/BI institutions. The 5 variables of q5_1_7 through q5_1_11 is directly representing the perceived values on the services provided by IG/BI institutions to the firms. Those latter 5 variables are withing network issue too. So, in this networking issue, the paper will see 2 sections, that is, (a) q4_1 group and (b) q5_1_7 through q5_1_11.

(a) q4_1group

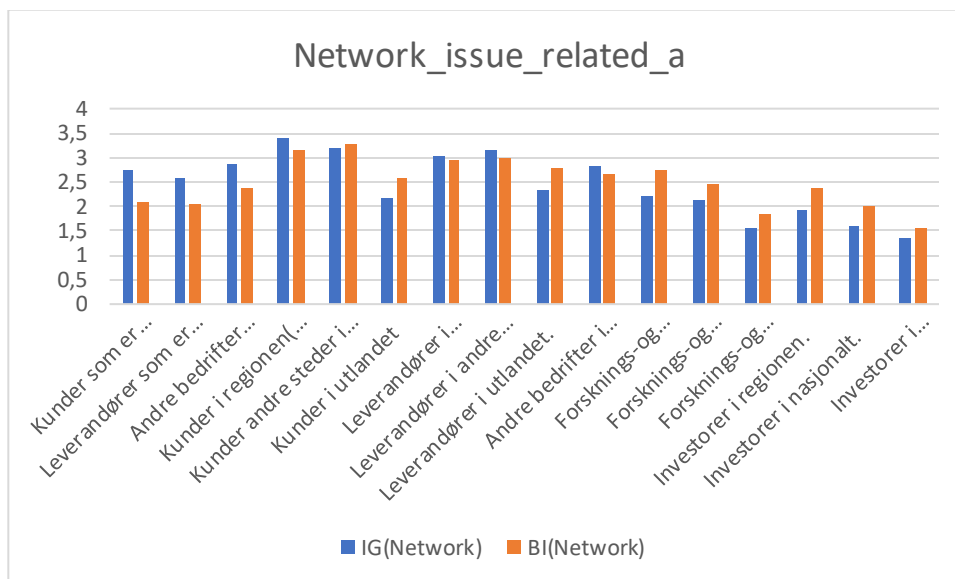


Fig (3) (more detail seen in Appendix A, Ark 9)

The difference (0,68) between scores of IGs' firms and BIs' firms is the second position in ranking of differences (see Table1), IGs' firms' side is better than BIs' firms' one. It is a little bit contrast with the whole set of scores in which BIs' firms are better than IGs' firms. The reason why is that most of IGs' firms are established firms than BIs' firms and they have communicated with their customers earlier.

The paper does the regression analysis on the whole section of q4_1 main question including 16 variables. But neither BIs' firms nor IGs' firms are significantly different or better than on one another. (see Fig 3 and Appendix A, Ark 9). But in this question group (q4_1), there are more variables by which IGs' firms have better scores than BIs' firms (7 of 16 sub-questions) rather than in other question group (q3_1 and q5_1). But all scores of both firms in this question group (q4_1) are lower than the scores of both firms in other question groups (q3_1, q5_1) apparently. (see comparison in Fig 1) The average scores of both firms' means are under 2.5 (2.43 and 2.49). Why does it occur? Question group 3_1 and its sub-questions focus to ask about the firms' opinion on the direction toward inside of the firms themselves. The questions seem more subjective and the answers less depending on the measurable items and more subjective too. In question (5_1) group, even though the sub-questions of q5_1 are more touchable, measurable than q3_1 group, those questions are focus on still more focus toward the firms inside than outward direction. But, q4_1 group and all including sub-questions' direction are going outside of the firms and toward the external environment. Less scores of both firms in q4_1 shows that maybe they still need the opportunities to utilize their absorptive capacities and develop it more. Absorptive capacities can be developed under the sufficient engagement with outside environment. Long and good enough networking with the other business actors can give such opportunity. And then the firms can utilize absorptive capacity and add new values to the firms and gradually will get commercial results and can build reciprocally up network competence more.

The next thing is to be discuss about that in 'customers from other places in Norway' variable, BIs' firms' score is better than IGs' firms' one, but in 'suppliers from other places in Norway' variable IGs' firms' score is better than BIs' firms' one. Something between those two events is presumably a little bit contrast. The possible reason is that BIs' firms can deliver their products or services more effective with digitalization and modern communication and so they need less work done by suppliers or their product or services need less delivery services.

Another thing is to be considered that the influence of locating the firms inside or outside of IG/BI institutions' environment and central part of the country. Both types of firms' location are very determinant to get effective services from IG and BI institution to get better networking. If the firms locate where IGs' and BIs' offices and central areas, these firms will achieve to build better networking. (Jakobsen, 2017, pp. 154-155) Such thing could be solved with digitalization. Digitalization can combine many things or people from the

separate areas. Some firms need to locate the outside of the institutions' location or outside of the central area because of getting their raw material or the environmental advantage. In q4_1_9 'working with suppliers from abroad' variable, the firms located outside of the IGs' area has 2.5 score and that has better than the firms located in the IGs' area which have just 2.(Jakobsen, 2017, p. 156) How is such occurring happening? It is most possibly that digitalization and modern communication system helped those firms locating outside area to get that result. Such firms can share their experiences to other firms and to the institutions too. That mean can be considered as outsourcing and it is quite important in networking and building up firm social relation and capital.

(b) q5_1_7 – q5_1_11

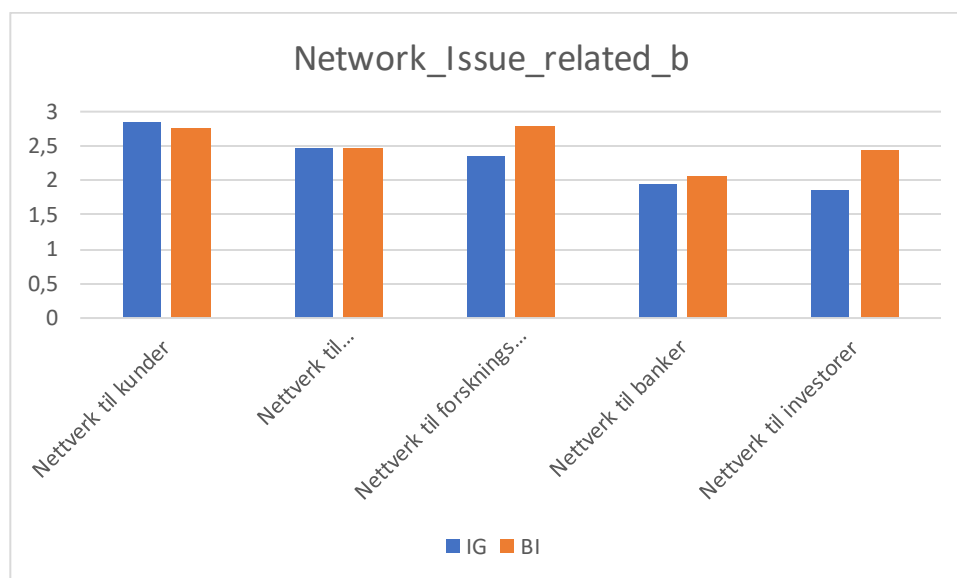


Fig (4) (more detail seen in Appendix A, Ark 10)

Even though BIs' firms' scores are better than in (4 of 5) variables, this is not significant according to the regression analysis (can be seen in Appendix A, Ark 10). All scores of both types of firms are under 3, and average of IGs' firms is just 2.3 and BIs' ones is 2.5. It can be considered that both types of firms have low perceived values in Networking issue.

The ambitions of the IGs' affiliated firms are to understand the customers' wishes and needs, together with growth *ibid.*(Jakobsen, 2017, p. 73) IGs' firms have high ambition to customer-related issue. But they don't have high enough score of perceived values yet in 'Network for Customers' (q5_1_7) variable. It is just 2.854. The reason why IGs' firms have

better scores in 'Network for customers' than BIs' firms is that there are more established firms in among IGs' firms than BIs' firms. So, their effort to sell their product or services out to the customers quite earlier than BIs' firms and they have already had some networking to the customers when half part of the BIs' firms just begin to establish. Such gap may lie generally between established firms and new start-up firms, like profitability issue as well. Because established firms have sold out their products or services to the market while start-up firms are still processing to sell their product or services and they are still paying out for the investing resources and they don't have profit good enough. Anyway, customers relation or networking is very important for the firms to reach to the market and to have competitive advantages. So, both firms need a lot of effort to promote such networking. In this big data age, digitalisation and modern communication system can help the firms to promote their networking ability to reach required level to all above-mention targeted sectors. To get better networking to customers the firms have try to fulfil customers' satisfaction and build customer relation by providing better quality services too. Perhaps, in the current situation both firms have not done sufficiently yet these things even though they have potential. Otherwise they do not possess neither these capacities nor potential. Such things can be happening because either the firms have not got sufficiently good quality services provided by the IG/BI or even though IG/BI have provided quality services the firms do not have the absorptive capacities to utilize these services in the networking issue. Both firms and institutions side should review sincerely and correctly current situation and looking for the ways to change such situation will result the best possible outcome.

In the former part of this network relation issue, it was mentioned that digitalization and modern communication can help to promote effectively networking of the firms to customers, other firms, suppliers, and other organization, it is needed to think also human relation, time, and process of network as well. Networking is the mutually dependent interactive process between two actors. It is social relation process. So, it is influenced by how the two sides interact each other. Even though how good technology is, if interaction is influenced by just the instruction of one side, it will not be successful networking. The two sides of partner of networking need to respect autonomy of each other . (Birgit Abelsen, 2013, pp. 305-307)Successful networking is demanding a lot of things to be considered and fulfilled and it takes necessarily enough time and skill for processing.

So, the still unsatisfied situation of current undertaking of both types of firms and institutions may be because all partners or one of them possibly have not achieved these

required skills yet or they have not spent the required length of time for the process of networking.

Finding in Network related issue – Nothing firms (IGs’ / BI’s) are significantly different or better than on one another. Both types of firms’ scores are quite low.

4.3.1.3 q5_1_1(Working with Investors) Investors issue related group

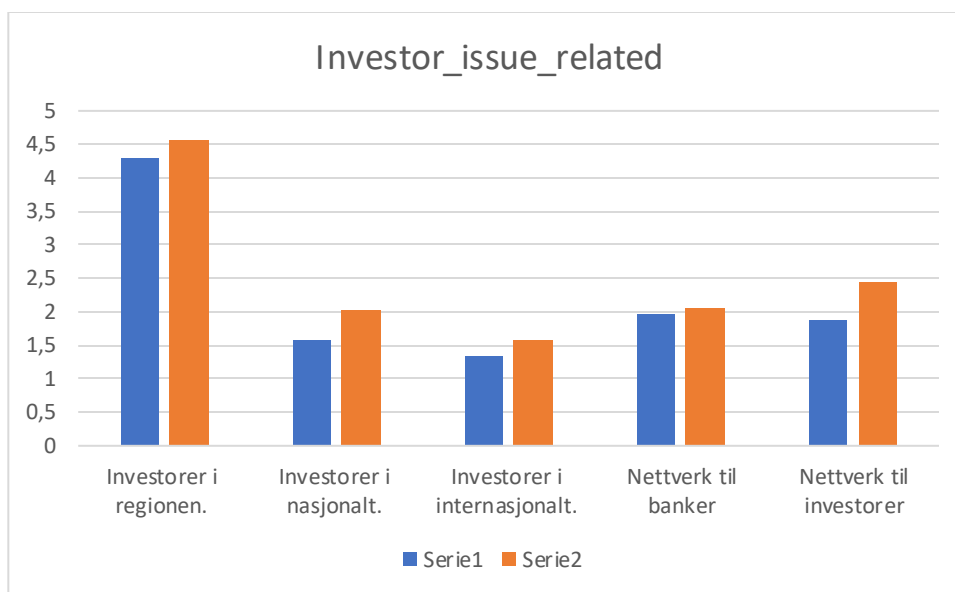


Fig (5) (More detail seen in Appendix A, Ark 11)

In the order of ranking of differences, q5_1_11 ‘Network for Investors’ variable which shows the level of strengthening the firm takes 3rd position with (difference 0,566093) and it is also a construct to be examined according to the research outline. But that variable is included in the previous section as well when it is examined and analysed to Network related issue group, however it was not focused on neither this variable nor investor issue. The paper includes q5_1_10 ‘Network for bank’ also because this is closely related to investor issue. In addition, there is special feature in investor issue because this pair (both IG’s and BI’s firms) has the lowest score in q4_1_16 (Investors in international) among 40 variables. But when we see the question q5_1 group, the level of strengthening the firms of ‘network for bank’ is lower than ‘network for investors’. So, it can be accepted that the variables involved in this investor related issue are lowest among all variables. It can be proved that the sum of both firms of the scores on q5_1_10 ‘Network for bank’ is just 2,912 and it is the lowest among the

sum of both. This is also another striking point to examine. Another thing interesting in this issue is that the scores of q4_1_14 'investors in region' are significantly higher than other investors in national and international and BIs' firms' score is better than IGs' firms that is focusing more activities in the region.

Why does these two perceived values so differ in this issue? This question is interesting not only this is because of the mentioned reason but also there is another reason. Why did it happen? So, this subject, 'network for the investor' is the most striking point for the researcher to investigate and analyse why it was so different and why it was so low in perceived values?

It can be mentioned that the capacities of performances of both types of companies are not satisfactory in this area. This can be caused by the fact that they could not sell their business plan to the investors well enough and then investors were not interested in investing and they cannot reduce the possible risk and on the other hand the investors themselves have low risk-taking attitude. If they invest in this area, they think that it will be just a little bit chance to get profit both in the short term and in the long run as well. In addition, they could think that they could even lose their money invested at the worst situation. On the other hand, there is the fact that investors may be tolerant to their risk if they view that the business plan is very promising. If business plan could show a lot of probabilities to success, the risk of the investors is minimizing. But how good planning and presentation business plan is, if the investors have just low risk-averse, it can be difficult for the firms to have networking with investors. A survey shows that this fact. "When asked about the authorities' role as providers of capital, we receive in response that they probably have a larger and clearer role in Norway than many other countries because we do not have enough risk-averse investors."(Daniel Isdal Furset, 2019, p. 37)

So, the businessperson must make the good business plan and convince the investor it with good presentation. "In a sense, the business plans are 'selling tool'- one that helps the entrepreneurs promote their ideas in ways that ultimately provide the resources needed to implement them."(A. Baron, 2012, p. 150) According to the Baron, the entrepreneurs of the firms can try to promote capacities of performance to get wider network for investors by thinking, preparing and drawing the business plan and let them buy or invest in their start-ups. Moreover, Baron meant that planning business plan makes entrepreneur understand many complex issues and vast arrays of difficulties they will face and then it can help entrepreneurs modify their business plan on the ways of operating after their getting start of their business

and can be able to align their firms accordingly ever changing situation. That means planning business plan is not rigid. It is flexible and opened. It is effectuation, not causation. (Jakobsen, 2017, p. 151)

In practical, the firms are very independent to the institutions to get networking with investors rather than themselves by seeing they are not satisfied with the service provided by the institutions concerning with this issue. (Daniel Isdal Furset, 2019) The institutions have the aim to help the firms to get the networking with investors because the firms have lack of legitimacies and visibilities by the view from investors. So, it can be concluded that neither the writing and doing presentation business plan by the firms are not performed efficiently nor institutions cannot help the firms this service effectively. It can be meant that institutions could have carried out their services which are 'infrastructure' and most part of 'business capability development', but not in 'market reach development' yet.

As the last point is to be presented in this issue is the data analysis by regression analysis (Appendix A, Ark 11). It shows that BIs' firms' perceived values are significantly different or better than IGs' firms' ones. The regression analysis proves that R square value is over 90% and significant P value is lower than 0.05. The most distinguishing point is that even though IGs' firms are more focusing on region rather than national and international, the BIs' firms' perceived value is still better in the region. So, this situation shows that IGs' firms need to perform more activities effectively rather than BIs' firms to get better results to the networking for the investors.

Finding in the investor issue – 1. BIs' firms perceived values are significantly better than IGs' firms' ones.

2. Institutions (IG and BI) could have carried out the services of infrastructure and some part of business capability development, but not in market reach development.

3. Both firms could have carried out just the lowest level of performance and perceived values in investor related issue among the variables and IGs' firms have less capacities than BI in the region where is IGs' firms' focus area.

4.3.1.4 q4_1_2(Working with Supplier affiliating to IG/BI)

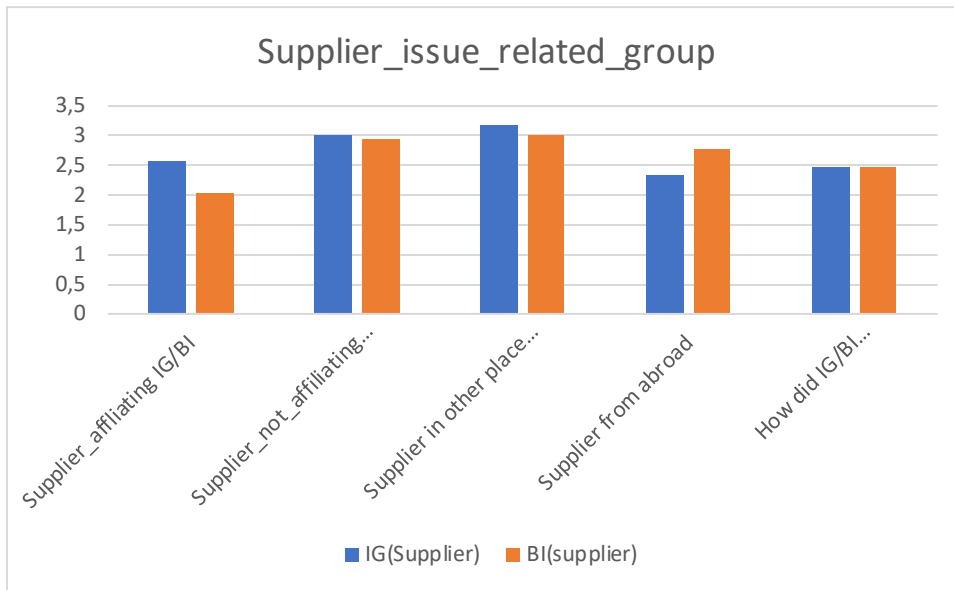


Fig (6) (with more detail seen in Appendix A, Ark 12)

In q4_1_2 Supplier relating to IG/BI, the difference of those two is 0,541734 and it is standing 4th place in the ranking of perceived values of 40 variables. This group is very concerning with network related group as well. But, in this group IGs' firms' variables have good results than other issues. In 3 of 5 variables involving in this group, IGs' firms' scores are better than BIs' firms' ones. Only 'suppliers from abroad' variable, BIs' firms' score is better than IGs' firms' one. BIs' firms' score to the suppliers affiliating to BI is less than other suppliers (not affiliating to BI, suppliers from other places of Norway and abroad). It is quite interesting to consider that the both types of firms do not work so much with suppliers affiliating to BI/IG rather than not-affiliating to institutions. What can be the reason? Possible reason is that suppliers not-affiliating with institutions needs more networking activities themselves with the firms than suppliers affiliating with institutions. So, it can create the situation under which the firms can work with them easier than suppliers affiliating with institutions.

In 'working with suppliers from abroad' variable, BIs' firms' scores are quite better than IGs' firms' ones. It shows that BIs' firms' have more export and import product or services than IGs' firms. Both firms have entered the international market in some extent, or they are about to enter international market one or another way. The pair of both firms' score is (2.33 and 2.77) and the difference is 0.45 is quite significant (16% of BI's firms' score).

It is a little bit strange that in 3 variables (q4_1_2, q4_1_7, q4_1_8), IGs' firms have better scores in this issue than BIs' firms and but they give the score lower than BIs' firms in q5_1_8(How much have the IG/BI strengthened the firms by affiliating to IG/BI?) variable. The possible reason can be that the better performance of IGs' firms which is rather than BIs' firms in this issue is caused by their own effort than affiliating to IG in some extent.

According to the regression analysis (seen Appendix A, Ark 12), there is no significant different or better between IGs' firms' perceived values and BIs' firms' ones.

Finding – Having both firms having scores for 'working with suppliers from abroad' show that the firms have entered international market by exporting or importing or have potential for international market.

In 3 variables (q4_1_2, q4_1_7, q4_1_8), IGs' firms have better scores in this issue than BIs' firms and but they give the score lower than BIs' firms in q5_1_8(How much have the IG/BI strengthened the firms by affiliating to IG/BI?) variable

IGs' firms can believe that the better performance of IGs' firms which is rather than BIs' firms in this issue is caused by their own effort than affiliating to IG in some extent.

No significant difference in the perceived values between two types of firms according to the regression analysis.

4.3.1.5 q5_1_3 Survivability issue related group

With survivability variable, difference between those two is 0.52 taking 5th position in ranking of differences. BIs' firms' score is better than IGs' firms' one. So, the paper take into account that it is a construct to study as well. The fact that both firms' scores (3.18/ 2.66) are more than 2.5 is good sign.

In survivability related issue group, it is included 6 variables:

1. q3_1_5 Our firm has good opportunities for funding (loan, investor capital etc)
2. q5_1_1 Profitability
3. q5_1_3 Survivability
4. q5_1_6 Business understanding
5. q5_1_10 Network for banks
6. q5_1_12 Team Composition

The research has tried to examine whether there is relationship between the variable q5_1_3 'Survivability' and other 5 variables or not by regression method with multivariate test on the both types of firms. (seen Appendix A, Ark 13(BI firms) and Ark 14 (IG firms))

For BIs' firms analysis, even though only two variables (q3_1_5 'good opportunities for funding' and q5_1_12 'Team composition' variables) do not have significant P value, other three variables have significant P values and in total sett there is significant P values. In addition, coefficient determination R-square is 0.5 and it is good enough so that conclusion can be drawn that there is correlation between BIs' firms' survivability and other above-mentioned independent variables.

For IGs' firms analysis, even though only two variables (q3_1_5 'good opportunities for funding' and q5_1_10 'Network for banks' variables) do not have significant P value, other three variables have significant P values and in total sett there is significant P values. In addition, coefficient determination R-square is 0.677 (it is better than BIs' firms' one) and it is good enough so that the paper concludes that there is correlation between IGs' firms' survivability and other above-mentioned independent variables.

In both firm analyses, q3_1_5 'good opportunities for funding' variable does not show that there is correlation between this variable and 'survivability' variable and it means that we cannot do predict with this variable for both types of firms' survivability. Why is it not? The possible reason is that good opportunities for funding variable is just relevant with the continuously existing firms and not relevant with the firms which have already gone or potentially go to bankruptcy. With other 4 variables, the rate of survivability can be predicted by 4 other variables in both types of companies. There is positive relation between survivability and them. Therefore, those 4 variables can be bettered, the rate of survivability will increase.

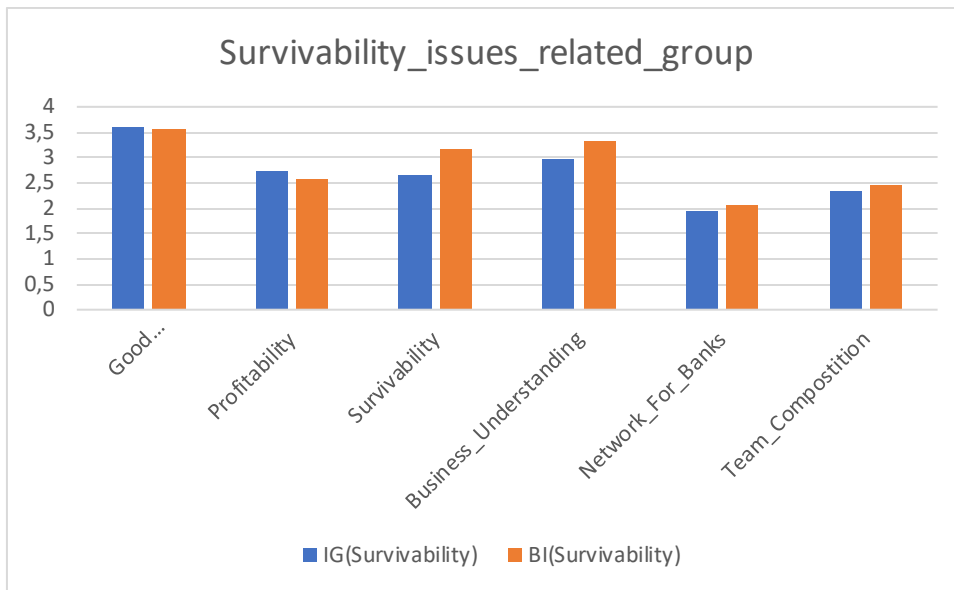


Fig (6) (with more detail seen in Appendix A, Ark 15)

When the linear regression analysis is done between those two types of firms, it is found that the BIs' firms perceived values of services on survivability related issue are better than IGs' firms' ones (more detail seen in Appendix A, Ark 15)

IGs' firms have better score in profitability than BIs' firms' one is caused by the most of their firms are established firms than BIs' firms *ibid*. In IGs' firms' regression analysis for correlation between survivability and 4 independent variables, the existing of correlation is caused by mostly this 'profitability' variable. IGs' firms' survivability is more related with their profitability sure. Concerning with 'Team composition' variable, even though BIs' firms' one is better than IGs' firms' one, there is no correlation between BIs' firms' survivability and 'Team composition', but for IGs' firms there is correlation between survivability and 'Team composition'. This is a contrast for that event.

It is possible that in the total set of multivariate regression for BIs' firms, business understanding variable influences much more than other variables on the existing of correlation between survivability and 5 independent variables. So, it is very possible that the high score in business understanding of BIs' firms has influenced survivability variable a lot so that BIs' firms' score on perceived values of survivability is significant higher than that of IGs' firms' one. It can be proved that among these five independent variables, business understanding variable has highest T statistics value (6.47) and P-significant value (4.19E-10) is smallest.

Even though in q5_1_1(profitability) IGs' firms have better score than BIs' firms, BIs' firms are significantly better than IGs' firms in survival issue. The possible reason is that most of the BIs' firms have really such capacities or most of the BIs' firms are start-up firms and they are still operating to the time when they can know they are profitable or they must go to bankrupt.

From absorptive capacity point of view, it can be concluded that the BIs' firms can utilize explorational learning, transformational learning and exploitative learning more the knowledges getting from the services provided by BI institutions. Possible reason is that BIs' firms (69%)have more knowledge-based firms than IGs' firms BIs' firms (42 %).(Jakobsen, 2017, pp. 43 - 72)

We cannot say anything about the influence of 'good opportunities for funding' because it is not found that there is correlation between survivability and this variable for both types of firms.

Findings – There is correlation between survivability and 4 independent variables (profitability, business understanding, network for bank and team composition) for both types of firms.

For IGs' firms, profitability variable mostly caused the correlation between survivability and those 4 variables. On the other hand, for BIs' firms, business understanding variable caused mostly such correlation.

BIs' firms' is significantly different or better in perceived values of services on survivability related issue.

4.3.1.6 q4_1_11(Working with R&D) Research and Educational environment issue-related group

Firstly, the paper mentions that q(3_1_7) is q(3_18) variables are included in this research and educational issue related group because the undertakings of those two variables are very similar to the research issue. Those are constantly done to get the information about customers and potential customers' want and competitors and potential competitors' effort for relating with customers as well. This effort is very look like with customers and competitors research. So, those two variables are included in this examination.

1. We constantly strive to gain the best possible insight into what our customers or potential customers want. (q3_1_7)

2. We continuously strive to gain the best possible insight into what our competitors or potential competitors are doing in relation to our customers or potential customers. (q3_1_8)

3. Research and educational environments in regional. (q4_1_11)

4. Research and educational environments in national. (q4_1_12)

5. Research and educational environments in international. (q4_1_13)

6. Network for the research and educational environments. (q5_1_9)

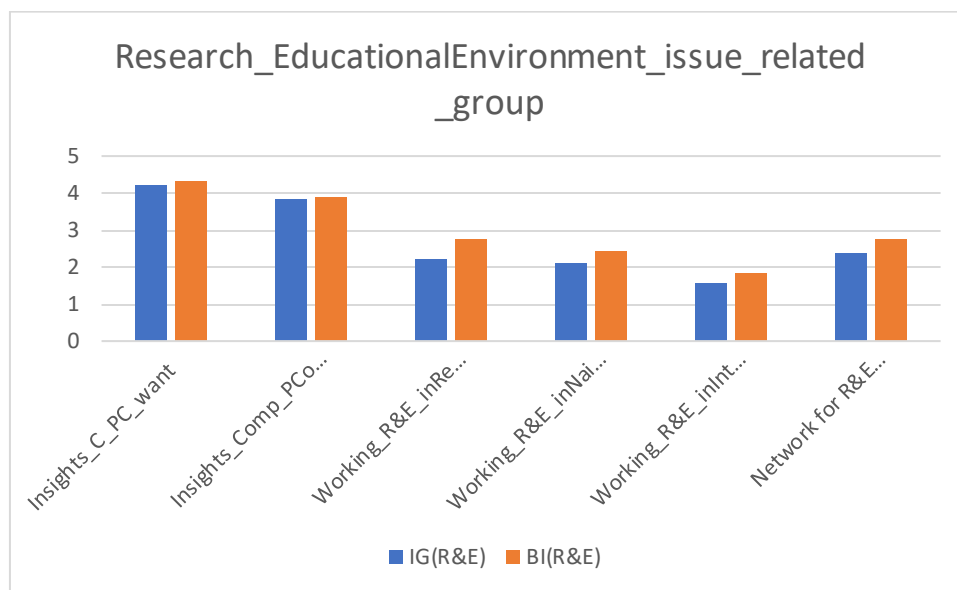


Fig (7) (with more detail seen in Appendix A, Ark 16)

The difference between the BIs' firms' score on q4_1_11 'Working with Research & Educational Environment in the region' and IGs' firms' ones is 0.52 and it is taking 6th position in ranking of differences (seen in Appendix A, Ark7). In (q5_1_9) 'Network for the research and educational environments' the difference of those two is 0.42 and it is place 10 the position in the ranking of differences. So, in this 'research and educational environment' related issue group, it is comprised of 2 constructs. Those are included those constructs accordingly research aim. When the regression analysis is carried out, it is found that BIs' firms' perceived values on the services are significantly different or better than IGs' firms' ones (detail seen in Appendix A, Ark 16).

Among those variables, q4_1_11 (Working with Research & Educational Environment) is the most important because it gives big difference between two types of firms and region is the focus area of IGs' firms. In its focus area, the IGs' firms should have good perceived values than BIs' ones. But it is not.

The reason of being significant different between those two is BIs' firms have more knowledge-based firms than IGs' firms and it leads to the situation BIs' firms have good absorptive capacities than IGs' firms. That means BIs' firms can acquire more knowledge from the services provided by the institutions or external environment than IGs' firms and they can exploit those knowledges more.

In addition, BIs' firms invest in this R&E environment issue and it creates them to have better absorptive capacities again. Even though it could be said that BIs' firms are better than IGs' ones, both have quite low scores in this area. Only the investor issue is the group which has lower scores than Research and Educational Environment issue.

But the both firms answers the score higher in q5_1_9(Institutions have strengthened the firms by Network for Research & Educational Environment) rather than scores the firms answers for working with research & education environment in regional, national and international. It can be meant that they view the IG/ BI institutions positively concerning with the service provided in this area. But high scores in variables regarding with the firms' constant effort for getting awareness about customers' and potential customers' want and competitor and potential competitors' effort relating with customers' want is very good point. This task seems to be market research for the product or services. They are trying to produce according to the customers' want or market's need than their technological capability side. It means they will try to produce and sell their product or services according to the customer and market. These two things can motivate the firms to effort more for 'working with research and educational environment'. These two variables can push the firms to do research more. If the firms want to know more about customers' want and effort of competitor, the firms must find the data, registers the information about them systematically, and review and apply the data as well. These tasks cannot be done without research.

Findings – BIs' firms' scores on perceived values relating with research and educational environment issue are significantly different or better than IGs' firms' ones.

Both firms answer better scores on the perceived values of how much the institution has strengthened the firms by networking with research and educational issue rather than the scores of that the firms have worked together with research and educational environment.

Even though the region is focus area of the IGs' firms, BIs' firms has better score than IGs' firms in the variable of 'working with the research and educational environment in regional' too.

When we review all 6 issues, in 4 of 6 issues BIs' firms' perceived values are significantly different or better than IGs' firms' ones. International, investor, survivability, and research & educational environment issues.

In 2 of 6 issues, Networking and Working with supplier issue, there is no significant difference between those two types of firms.

4.3.2 Comparison of perceived values on the services provided by the IG/BI institutions to the respective firms by seeing results of them

The comparison is done, based on the perceived values services provided by IG/BI institutions to the respective firms. The questions asked to those services directly getting from IG/BI institutions. So, these questions set q (5_1), q (6_1) and q (7_1) are including under this title. Totally all questions are 14. When the paper has done regression analysis, it is found that BIs' firms' perceived values are significantly different or better than IGs' firms' ones (seen in Appendix A, Ark 17). In 11 of 14 questions, BIs' firms are better than IGs' firms and just 3 of 14, In q5_1_1 (profitability), q5_1_7 (Network for customers) and q7_1 (How satisfied to the affiliating with institution?) issues, IGs' firms are slightly better than BIs' firms.

In q5_1_11 (Network for Investors) (difference – 0.57), q5_1_3 (Survivability) (difference – 0.52) and q5_1_9 (Network for Research and Educational Environment) (difference – 0.42) variables, BIs' firms are significantly better than IGs' firms and especially those 3 events have caused the being of significant different or better of BIs' firms over IGs' firms.

But, BIs' firms are quite better than IGs' firms in network for investors variable, both firms' scores are low. Not only IGs' firms must effort to improve such situation, BIs' firms should do also. For IGs' firms must do more and more in this investor issue area. Investor issue area is very critical for IGs' firms.

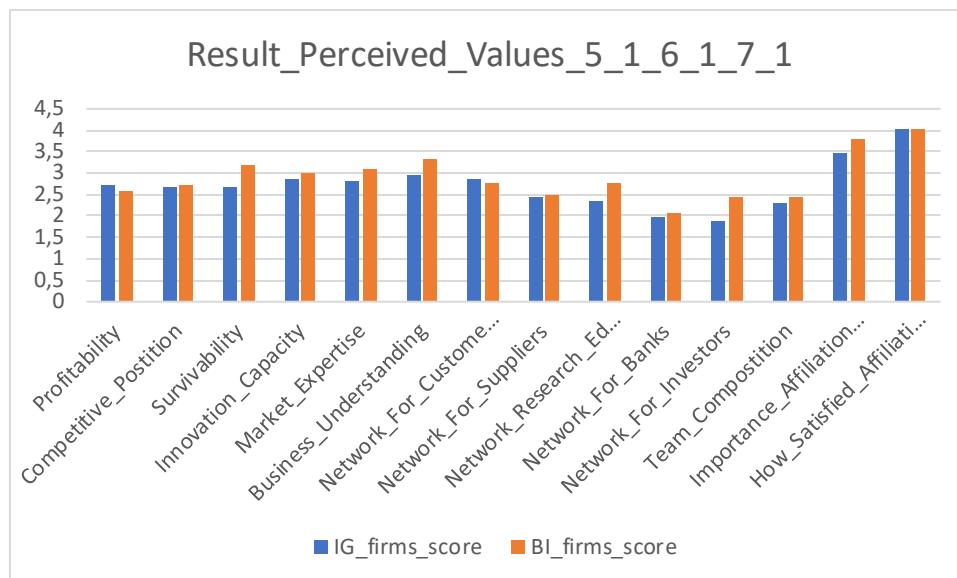


Fig 8. (with more detail seen in Appendix A, Ark 17)

4.3.2.1 Viewing over mean values of scores on the variables

So far, we have used the mean values of scores on the variables. But we have not seen the spreading of the scores. Here we see a little bit about this. By viewing the spreading it can be expected that the firms can find out the solutions for the current difficulties. Even in network for investor issues and IGs' firms' performance, it is found out that some firms answered the best scores. 18 of total 459 firms answered the highest score 5 and for BI firms 22 of 294 firms answered best. Totally 40 of 753 firms (5.31%) have answered this 100% of perceived values (seen in Appendix A, Ark 18). They could have performed very good networking with investors. They have the ways for them. If they can and they share their knowledge and experiences to other firms, other firms can learn, develop, and exploit for their firms. If the successful firms which gave the high scores in this survey and they share knowledge to the firms facing difficulties, those successful firms will get value creation and good results from working with outside environment. (Jakobsen, 2017) If they cannot share or they are not willing to share these knowledges and experiences because of competitive advantages, the other firms can be able to learn such firms' competitive pattern, investors reports, their activities during their competition phases. But institutions can have experiences with such successful firms and how they have developed the investors issues with cooperation. The institutions can apply such experiences to the other firms which are not done networking for the investors issue successfully with sharing general information and dummy firm, not specific already successful firm name. Like in this investor issue, in other issues too, the firms and institutions can develop knowledges as well like research issue, networking issue.

4.3.2.2 Considerations or suggestions for the improvement of perceived values or utilizing of the firms on services provided by the institutions

1. Firstly, it is mentioned that the IGs' firms should try to promote their capacities in the investor and research issue area because even though the IGs' firms are focusing on the region, IGs' firms' scores are far less than BIs' firms in the effort to networking for investor and research even in the region. This part is very critical for IGs' firms.

2. Even though BIs' firms are better than IGs' firms in networking for investor and research issues, because both firms' scores are lower than other issues BIs' firms should improve such situation as well. By trying to cooperate with the firms which performed this task quite successfully or learning those firms' characteristics can help the firms to promote network for investors capacities.

3. When the firms try to improve network for investor issue, the firms' leader or manager should try to write business plan, modify business plan accordingly changing situation and practice presentation business plan. Looking for right investors, trying to sell their business plan with good presentation and seeking market potential for business plan are important tasks for the firms.

4. Should try to invest the time and resources to the network for research and own research. By doing good and effective research, the firms can promote their dynamic capacities and absorptive capacities by which the firms can implement the practical operation accordingly with changing situation. (Trott, 2017, pp. 231-232) This can reduce risk and more possibilities for the profitability. This situation can attract investors. In addition, the firms can be more innovative as well.

4.4 Recap of main findings

Finding 1 – BIs' firms' perceived values on the services provided by the institutions are significantly different or better than IGs' firms' ones.

Finding 2 – BIs' firms' perceived values on the services (relating with international, investor, survivability, and research & educational environment issues) provided are significantly different or better than IGs' firms' ones.

Finding – 3 Even though the region is the area which IGs' firms are focusing, in the Working with investor in region and working with research and educational environment in the region, the IGs' firms have less scores than BIs' firms' ones. But both firms have low scores in those 2 areas than other areas like marketing, working with customers and suppliers.

Finding – 4 BIs' firms should improve its networking capacity to the customers and suppliers in the region more.

Finding -5 Even in those critical area, there are some firms from both types of firms could perform with good scores meaning good capacities and that can lead the opportunities for finding the solution by sharing knowledge, outsourcing and networking.

Finding -6 There is good correlation between survivability and profitability & business understanding of the both types of firms.

Finding -7 In growth ambition, marketing, innovation capacity, profitability, turnover, customers, and competitor related issues there is no significant different between those two types of firms. In addition, the firms have high ambition.

Finding -8 Capacity for writing and doing presentation the business plan is crucially important for success in networking with investors. But this research is unreachable to examine whether the firms have really these skills or not. This finding mentions that this task is increasingly important for the firms.

Finding -9 IG / BI have carried out their task the infrastructure and business capability development, but not in the phase of market reach development.

4.5 Limitation of this research and recommendation for future research

4.5.1 Limitation of this research

1. The research could not access to the firms' leaders for interviews. For example, how good they perform in writing and presenting business plan to the investors. Did they get presentation their business plan to right investors? How did they find out right investors? How did they use the digitalization and modern

communication technology in the networking with customers, supplier in the region, national, international? What about their interactive process in the networking and so on?

2. Lack of qualitative interviews for some issues like business understanding, growth ambition, innovation, has limited this research very much. From the data, I have known only that in these measures the firms are good. But it is difficult how they can apply the knowledges getting from provided by the institutions in detail. It is difficult to evaluate how good they are at these measures.
3. Corona (Covid-19) crisis disturbed and reduced the learning capacities as well.

4.5.2 Recommendation for further research

1. Doing research to the firms' leaders' writing and doing presentation capacities, and their marketing capacities of their business plan to the investors.

2. To examine the current investors' level of the risk averse. How to promote investors' risk averse?

3. To examine the difficulties of the firms to invest time, resources, and money in working with the research and educational environment. To find the ways to promote their motivation of the firms to do so.

4. To examine the firms' focus area, capacities, and resource allocation accordingly and specifically and doing research. Not generally. For example, the firms which do not aim at international market, the research does not need to examine this issue to this firm. Only examine the focus area of the firms such as region and national.

5. To examine whether BI and IG institutions should have specific focused area for specific institution or not. An institution cannot provide all technological or marketing suggestions for the firms. This is impossible even though all can provide business understanding. After that, each institution has had specific focus area, the institution can provide better services to the firms and the firms have already known that they must approach to which institution depending on which services they need.

5 Conclusion

Writing thesis of master is not only giving challenges but also stimulating learning's willingness like establishing the firm, writing the business plan. Firstly, I get the general issue and SIVA report about the business incubators, industry gardens and their respective firms' business activities. After that reading and doing literature review that survey report and finding literature gap. In the very beginning, I have not known what to do alone. But I learnt a proverb 'The more you do, the more you can'. For the whole my stadium from bachelor to master, I have remembered many times this proverb and Thomas Edison's proverb 'The people do not know the opportunity because the opportunity only comes with working uniform'. So, I try to work hard. I read and think and pose problem statement, and then discuss with my supervisor and always value his consultation and try to improve again and again.

I will not mention again my findings here. I have mentioned what my findings are in the section 4.4 Recap of main findings.

Today I can accomplish my thesis anyway good or bad. But, I effort my best from getting resources which I have access to. I contribute my findings to the possible readers. I expect my contribution is useful for the firms and business incubators (BI) and industry garden (IG) institution and business section of Norway.

6 The list of Appendix A

- Ark 1. All answers of the IGs' and BIs' firms on all questions (40)
- Ark 2. Cronbach's Alpha analysis on all BIs' firms' data
- Ark 3. Cronbach's Alpha analysis on all IGs' firms' data
- Ark 4. All questions' text, differences, and total of both firms' scores
- Ark 5. Linear Regression Analysis on the BIs' vs IGs' firms' all scores
- Ark 6. All perceived values of the all 40 variables' figure
- Ark 7. Ranking of the differences between IGs' firms' scores and those of BIs' firms
- Ark 8. Linear Regression Analysis of IGs' and BIs' firms' scores on international related issue
- Ark 9. Linear Regression Analysis of IGs' and BIs' firms' scores on network related issue
- Ark 10. Linear Regression Analysis of IGs' and BIs' firms' scores on international related issue
- Ark 11. Linear Regression Analysis of IGs' and BIs' firms' scores on investor related issue
- Ark 12. Linear Regression Analysis of IGs' and BIs' firms' scores on suppliers related issue
- Ark 13. Multivariate Regression Analysis of BIs' firms' survivability variable and other 5 variables (Opportunities for funding, Profitability, business understanding, network for bank, team composition) related issue
- Ark 14. Multivariate Regression Analysis of IGs' firms' survivability variable and other 5 variables (Opportunities for funding, Profitability, business understanding, network for bank, team composition)
- Ark 15. Linear Regression Analysis of IGs' and BIs' firms' scores on survivability related issue
- Ark 16. Linear Regression Analysis of IGs' and BIs' firms' scores on 'working with research & educational environment' related issue
- Ark 17. Linear Regression Analysis of IGs' and BIs' firms' scores on 'Result of perceived values under (q5_1_q6_1, q7_1)'

Ark 18. Spreading of the scores for network for investors.

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