

# Appendix 3: Bornholm, Denmark

## Introduction

Entrepreneurship and innovation have increasingly become part of the education discourse, also in a Nordic context. This is due to the globalisation and pervasive societal changes (Moberg 2014). In the Nordic countries there is, in general, a great focus on implementing innovation and entrepreneurship in the education system to ensure that pupils and students acquire entrepreneurial competences. And with good reason!

Entrepreneurship education is an important factor in changing and developing society. Focusing on and aiming at obtaining more entrepreneurship education throughout the entire education system is based, among other things, on the economic belief that the Nordic countries need more entrepreneurs and innovative employees in order to increase job creation, new business ventures, and productivity. This is particularly urgent for outlying geographical areas and islands in the North.

Today the Nordic countries experience different socio-economic challenges, and the outlying geographical areas are especially marked by challenges such as lack of education possibilities and jobs, depopulation, and economic stagnation. This requires focus and a special effort.

This is particularly so in some Nordic islands who also experience a loss of high skilled labour as young people with high career ambitions leave the area and move to urban areas due to job shortage. Moreover, new companies and working places do not replace the ones that have disappeared and thus new jobs are not generated. One of the reasons could be said to be the lack of entrepreneurs and innovative employees.

Teaching children and young people the entrepreneurial skills during their education in local schools and educational institutions and supporting the local development of new business can help redress such challenges and stimulate economic growth in the local area.

The one-year pilot project, *Nordic Entrepreneurship Islands*, launched in November 2015, especially addresses the educational and new business venture challenges on seven selected islands. The project also addresses the opportunities and potentials arising from an increased focus on entrepreneurship education and start-up capital for student start-ups on the islands.

In order to define the opportunities and to forecast the potential development of entrepreneurship education and future potential candidates for receiving a student start-up Micro Grant, a mapping of the existing spread of entrepreneurship education at the upper secondary and tertiary education levels has been carried out on the seven islands. The entrepreneurial potential of each island is assessed on the basis of these results as well as on other research.

The full entrepreneurial potential is viewed as the number of young people partaking in entrepreneurship education and the expected amount of new companies/jobs created as an outcome of implementing different initiatives. The objectives of enhancing pupils and students with entrepreneurial competences and start-up capital are based on the rationale of increasing societal creativity and ideation. The ambition is that, in the long term, new companies will emerge as a result of these initiatives and more students will obtain skills and competences that will enable them to create and establish new companies.

The quantitative objective is to ensure that young people at different educational levels will engage in entrepreneurship education at least once during their education. As a whole, the project is about enhancing the islands' market position internationally and contributing to a sustainable development, growth and jobs through young people who remain in the local area and start up new businesses.

## Methodology and Structure of the report

This report maps the present situation on Bornholm with regard to aspects concerning entrepreneurship education on three levels: the macro, the meso and the micro level. Moreover, a Micro Grant was awarded to a promising student start-up on Bornholm.

In order to map the status of entrepreneurship education on Bornholm, data were collected by means of surveys in the form of questionnaires to respondents on three levels of the "entrepreneurship education ecosystem".

The three levels are:

- Macro level: The national strategy for entrepreneurship education in the islands/countries.
- Meso level: The strategy for entrepreneurship & innovation of educational institutions.
- Micro level: The number of pupils and students participating in entrepreneurship education at upper secondary and tertiary level.

The report is divided into chapters according to the three levels and the Micro Grant. As a background for the mapping, demographic data provided by Nordregio concerning population changes and employment situation on Bornholm are shortly discussed in the first chapter.<sup>73</sup>

### *Definitions of entrepreneurship and entrepreneurship education*

In Autumn 2010, the Danish Foundation for Entrepreneurship formulated a definition of entrepreneurship with the aim of applying and incorporating it in a variety of educational contexts and of accommodating both a commercial entrepreneurial approach and an educational and competence-based approach. In 2013, a definition of entrepreneurship education was formulated.<sup>74</sup>

Entrepreneurship is defined in the following way: "Entrepreneurship is when actions take place on the basis of opportunities and good ideas, and these are translated into value for others. The value thus created can be of an economic, social or cultural nature." (FFE, 2011). This definition shows that the creation of value can take different forms and may thus include intrapreneurship, social enterprise, cultural innovation, etc.

Entrepreneurship education is defined as: "Content, methods and activities that support the development of motivation, competence and experience that make it possible to implement, manage and participate in value-added processes." (FFE, 2013)

Both definitions are used as a frame to define the questionnaires and course descriptions on the meso and micro levels and thus set the frame for the mapping of entrepreneurship education in the seven Nordic islands.

### *Macro level*

The Progression Model for Entrepreneurship Education Ecosystems in Europe from the European Commission (see Appendix A for further details) has served as inspiration for framing the data collection on the macro level. The model identifies four different stages in the development of a strategy for entrepreneurship education:

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<sup>73</sup> <http://www.nordregio.se/> Nordregio is a leading Nordic research institute within the broad fields of regional development and urban planning.

<sup>74</sup> See [www.ffe-ye.dk](http://www.ffe-ye.dk) A Taxonomy of Entrepreneurship Education: Perspectives on goals, teaching and evaluation, 2015 for a detailed discussion of this.

- Pre-strategy (based on individual initiative).
- Initial Strategy Development.
- Strategy Implementation, Consolidation & Development of Practice.
- Mainstreaming.

The model also identifies five key areas in which a development of practice takes place during the development and implementation of a national strategy for entrepreneurship education. The questionnaire for the macro level is built on these five key areas:

- Developing the national strategy framework.
- The role of local and regional authorities.
- Implementing entrepreneurship education.
- Teacher education and training.
- Engaging with businesses and private associations and organisations.

The project manager on Bornholm completed the questionnaire during 2016. Wherever necessary, the project manager received expert knowledge from relevant government officials and people with knowledge in the area.

### *Meso level*

To map the meso level, which constitutes the link between the national strategy level and the implementation level, that is the actual teacher practice, a questionnaire targeted the institutional management of educational institutions was designed. The questionnaire examines the strategy of entrepreneurship education at educational institutions at the upper secondary and tertiary education levels on four main areas:

- School strategy & form.
- Organisation.
- Competence.
- Practice.

The purpose of this survey at the meso level is to provide an overview of the existing measures related to a strategy for entrepreneurship education in the educational institutions as well as their experiences with activities related to entrepreneurship education.

The Danish Foundation for Entrepreneurship has not previously conducted a mapping at the meso level. As a continuation of the Progression Model for Entrepreneurship Education Ecosystems in Europe, the Danish Foundation for Entrepreneurship therefore developed the questionnaire specifically for the mapping of the meso level in this project. "A Quality Standard for Enterprise Education", developed by Centre for Education and Industry, University of Warwick, and "HEInnovate", a self-assessment tool for entrepreneurial higher education institutions, initiated by the European Commission, DG Education and Culture and the OECD LEED forum,<sup>75</sup> both served as inspiration for elaborating the questionnaire for the Nordic Entrepreneurship Islands project. The questionnaire is also framed by the definitions of entrepreneurship and entrepreneurship education, which were formulated by the Danish Foundation for Entrepreneurship.

The questionnaire was sent through the project manager on Bornholm to the management of educational institutions on the upper secondary level and the tertiary level on Bornholm.

### *Micro level*

The micro level concerns the actual practice of teachers in educational institutions at the upper secondary level and vocational/VET and the content of the course descriptions at the tertiary level.

At upper secondary level and vocational/VET the data were collected by means of a questionnaire directed at the teachers. The two different types of teaching have been taken into consideration when designing the questionnaires. One questionnaire is used for the upper secondary level and another for vocational/VET.

The purpose of the survey is to map the number of pupils in upper secondary education and vocational/VET who in the school year 2015/2016 participated in education or in activities leading to increased competence levels in innovation and/or entrepreneurship.

The two questionnaires examine basic information about the teachers' evaluation of their school's policy on innovation and entrepreneurship education.

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<sup>75</sup> <https://heinnovate.eu/>

It also examines the teachers' evaluation of the teaching in entrepreneurship education, but the methods vary in the questionnaires for upper secondary education and for vocational/VET education. The questionnaire aimed at upper secondary level teachers focuses on four areas or "entrepreneurial dimensions". Please see "A Taxonomy of Entrepreneurship education" for further elaboration on the entrepreneurial dimensions.<sup>76</sup>

The four entrepreneurial dimensions examined are:

- Action.
- Creativity.
- Environment (outward orientation).
- Attitude.

The questionnaire for vocational/VET teachers focuses on the type of teaching, e.g. innovation or entrepreneurship (start-up).

For the purpose of mapping entrepreneurship education at the tertiary education level, data were collected in the form of descriptions of courses within innovation and entrepreneurship and the number of students following these courses during the academic year 2015–16. To examine how and to which extent entrepreneurship and innovation are implemented at the tertiary level, "Stjernemodellen" is used as a tool for the categorisation of courses (see Appendix B for further details).<sup>77</sup>

The Star Model was developed by Øresund Entrepreneurship Academy with the purpose of identifying and quantifying entrepreneurship education courses in Danish universities. It was later updated by the Danish Foundation for Entrepreneurship in order to be applied for diploma and bachelor educations too, and was used by the Foundation during the last 6 years to map entrepreneurship education at the tertiary level in Denmark.

The model and method is used exclusively to identify the extent to which the course/subject focuses on entrepreneurship, it is not an evaluation or assessment of the quality of the course/subject as such.

At both the meso and micro levels, descriptive statistics were used in the treatment of the survey results.

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<sup>76</sup> <http://eng.ffe-ye.dk/media/555477/taksonomi-eng-2.pdf>

<sup>77</sup> "Stjernemodellen" will henceforth be referred to as the Star Model.

### *Micro Grants and the innovation ecosystem on the islands*

All islands in the pilot project have had the opportunity to award a micro grant to a promising student start-up. The Micro Grant is a small financial aid of DKK 25,000, which allows the student start-up to take their business further. A small case written about the local start-up and Micro Grant recipient documents the effects, needs and possibilities for young people on the island after receiving a Micro Grant.

The project manager on Bornholm has also provided information about the innovation ecosystem on the island in the form of a case.

All data were collected in the summer of 2016 and the preliminary findings were presented at a conference in November 2016 with the participation of different stakeholders from all seven islands. The preliminary findings were discussed, elaborated on and developed to customise and adjust the report and the forecasting about entrepreneurship education and Micro Grants on the seven islands.

### *Limitations of the methodology*

Nordregio has provided the data for the overall demographic mapping of the seven Nordic islands. Nordregio was selected as the single source in order to ensure that the same method was applied to all islands and countries in question. Small variations in the data may, however, occur in relation with local statistics or surveying methods.

The desk research regarding the macro level is based on questionnaires, which have been answered by the responsible project manager on the island. Whenever answers were missing or elaboration was needed, a few additional questions have been sent per email to the responsible project manager on the island. A few data were collected from other sources as well. The way in which the questionnaire was answered differs from island to island. Some have answered in more detail than others and also with different strategic knowledge behind the answers. The data given about each island/country are therefore not always equivalent, because they depend on the sources and on which information was available.

When it comes to the meso and micro levels, the percentages of participating institutions and participating teachers also vary from island to island. This mapping is based on the responses received. The mapping may therefore give an inaccurate picture of the actual circumstances on the islands, because it is not possible to know whether entrepreneurship education exists on educational institutions that did not participate in the survey. The actual situation on the individual islands when it comes to the existence of entrepreneurship education may therefore be different than what is communicated in this report.

As entrepreneurship education is a complex subject matter involving many levels of society and many stakeholders, it is not possible to give the full picture of the situation on each island regarding the strategies for entrepreneurship education by means of questionnaires distributed to a few key persons.

Furthermore, the report does not provide any conclusion about the maturity level of the individual islands/countries regarding a national strategy for entrepreneurship education. The Progression Model for Entrepreneurship Education Ecosystems in Europe (Appendix A) offers descriptions of a development of practice on each key area and thus allows the islands to evaluate the maturity stage of their own entrepreneurship education ecosystem, and at the same time the model suggests possible ways to further develop this ecosystem.

This report maps aspects of entrepreneurship education activity on different levels of society and thus depicts the different aspects of the entrepreneurship education ecosystem on each individual island. This makes it possible to draw conclusions about the potential of each island and define the key actors useful in the future development of the specific island.

The juxtaposition of seven such different islands caused some problems from a methodological perspective as differences in area size, population size and constitution are so pervasive and had to be taken into account whenever possible. Still, it was of course not possible to account for all differences between the islands.

## Demographics

This chapter describes the main demographic development on Bornholm in the recent period. This will serve as background for the mapping of the situation on Bornholm and for the suggested measures to stimulate growth. See Appendix C for tables on population and age structure as well as labour market for the seven islands participating in the Nordic Entrepreneurship Islands project.

### *Population and age structure*

The total population on Bornholm has declined by 6.4% in the period 2009–2015 (although the negative tendency has subsided significantly during the last couple of years).<sup>78</sup> The biggest challenge for Bornholm when it comes to the demographic

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<sup>78</sup> www.dst.dk



development is the fact that the share of the population aged 0–24 has decreased immensely, by 14.3%, while the population aged 25+ has decreased by 3.6%. In comparison to the other islands, this is a very considerable decrease in the young population (all islands, except Iceland, experience decreases in the young population, changes going from +0.9% in Iceland to -7.9% in Greenland).

In the same period (2009–2015), the old age dependency on Bornholm has increased very much (from 33.2% to 44.7%) while the youth dependency has decreased (from 25.5% to 23%). In fact, when it comes to these two sets of data, population changes and youth as well as old age dependency rates, Bornholm is the island with the biggest changes of the seven islands. Changes meaning that the older part of the population is increasing at a very fast rate.

### *Labour market*

The overall employment rate on Bornholm is relatively low but has had a very slight increase; in the period 2009–2013, it thus changed from 68.8% to 69.3%. The unemployment rate remained at a relatively high 8.9% during the same period and it is thus the second highest unemployment rate of all seven islands Greenland's rate being the highest. When it comes to youth unemployment, Bornholm had the highest rate of all islands in 2013 (19.7%), not counting the rate from Gotland, which is not available (however, the youth unemployment rate for Sweden as a whole was 23.7% in 2013).

The positive development in employment in Denmark is concentrated in big cities, especially Copenhagen, where the employment rate the last 20 years has increased three times as much (+30%) as in the rest of Denmark. At the same time, the employment rate on Bornholm has *decreased* by more than 10%, which is the most negative development of all Danish regions. One reason is that the tertiary sector (service industries) has grown a lot, and this sector is typically concentrated in cities. At the same time, the primary sector (manufacturing industries, farming and fishery), which typically exists mostly in rural areas, has experienced a large decrease in Denmark. Another reason for the employment decrease on Bornholm is the lack of qualified labour (e.g. caused by a low education level) and the lack of interaction with collaborating partners, suppliers and markets. Compared to other European countries, the differences in employment between capital and the country, as a whole is the largest in Denmark.<sup>79</sup>

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<sup>79</sup> <http://dst.dk/da/Statistik/Analyser/visanalyse?cid=27140>

### *Education level*

Bornholm has the lowest education level of all Danish regions. And compared to the other seven Nordic islands' education rates (share of population with a tertiary education level), Bornholm is in the lower half with a rate of 23.7%. The other islands' rates range from 14.4% in Greenland to 43.2% in Pargas.

### **Macro level**

Entrepreneurship education requires efforts on several levels to be successfully implemented in a country's education system and to have a societal impact. Measures need to be taken at both the policy level and at the implementation level with the involvement of, and collaboration with, key actors from all aspects of society. The immediate, responsible actors for entrepreneurship education are actors at the macro level (policy makers) who provide the framework for working in the area, actors at the meso level (school management), who decide how to implement entrepreneurship education in their respective educational institution, and actors at the micro level (teachers), who provide the entrepreneurship education in practice.

The private sector, e.g. private companies and organisations, is also essential, because they represent the labour market. The collaboration between educational institutions and the private sector helps shape efforts in the area and, again, influences policy makers to provide policies that will sustain these efforts.

As entrepreneurship is recognised as an important factor in a changing and developing society, the last decade has witnessed an increasing focus on developing strategies for entrepreneurship education in the European countries. Some of the Nordic countries are among the frontrunners and have well-established structures at national level. Still, it takes a lot of time and patience to reach educational institutions in every region of a country.

This chapter will look at existing initiatives and measures at the macro level on Bornholm. The desk research is based on information obtained from the island by means of a questionnaire.

The questionnaire provides data on five main areas, which correspond to the five key components of the entrepreneurship education ecosystem. Ideally, a national strategy for entrepreneurship education has a focus on developing action on these five key areas, according to the European Commission:

- Developing the national strategy framework.
- The role of local and regional authorities.

- Implementing entrepreneurship education.
- Teacher education and training.
- Engaging with businesses and private associations and organisations.

As action and measures are developed in these five key areas, the entrepreneurship education ecosystem goes from one maturity stage to the next. The Model identifies four maturity stages in the development and implementation of a national strategy for entrepreneurship education:

- Pre-strategy (based on individual initiative).
- Initial Strategy Development.
- Strategy Implementation, Consolidation & Development of Practice.
- Mainstreaming.

The Progression Model for Entrepreneurship Education Ecosystems in Europe from the European Commission can be viewed in detail in Appendix 1.

### *Developing the national strategy framework*

In Denmark, there is a well-established structure at the national level for working with entrepreneurship education. There is a strategy and goals for all education levels and a cross-ministerial collaboration on the policy level that works closely together with the main partner on the implementation level, The Danish Foundation for Entrepreneurship (FFE). FFE, among other things, facilitates seven regional units that operate at the local level with ecosystem initiatives. One of these regions is located on Bornholm. Stakeholders from all levels of society work together and are represented on the board of FFE Region Bornholm. Moreover, the main organisation of FFE has a structure for mapping entrepreneurship education and measuring the impact of entrepreneurship education in Denmark on an annual basis.

The annual budget for entrepreneurship education in Denmark is approx. EUR 4.5 million, approx. 25% of which are given as funds to development projects in schools and educational institution under the administration of FFE. FFE is funded by the Ministries and by private organisations. FFE moreover takes part in several international research projects that develop and share knowledge on entrepreneurship education.

### *The role of local and regional authorities*

The regional centres for entrepreneurship education in Denmark are the regional units of FFE. In addition, FFE collaborates with 6 regional growth forums, consisting of members from the regional council, local authorities, educational institutions, business community, and commercial organisations. These growth forums focus on entrepreneurship and growth, many of them also with a focus on entrepreneurship in education. One of these growth forums is located on Bornholm.

There are several local initiatives on Bornholm to support new entrepreneurs. Business Centre Bornholm (BCB) runs start-up cafes, successful online as well as individual programmes with guidance about starting up your own business. BCB has also recently started to cooperate with FFE Bornholm and Campus Bornholm about an initiative that includes visits to education institutions to teach students about entrepreneurship.

Bright Park Bornholm is an initiative on Bornholm, which offers cheap office space facilities and networking possibilities for new entrepreneurs. Bornholms Landbrug offers consultancy services to entrepreneurs within food and agriculture.

### *Implementing entrepreneurship education*

Entrepreneurship education is taught at all education levels in Denmark as both a method and a subject, but the implementation may vary from one educational institution and region to the next. However, the reform of the primary school and VET education from 2014 introduced a mandatory entrepreneurship education subject in all primary schools, "Håndværk og Design" (in 4th–6th grade), and made entrepreneurship education mandatory in part of VET education. In upper secondary schools, entrepreneurship education has been implemented in all study directions, but to a larger degree in the higher technical and the higher commercial ones and less in the general Gymnasium. At the higher education level, entrepreneurship education has been implemented in varying degrees, mostly as optional subjects.

The most widely spread forms of entrepreneurship education in Danish educational institutions are the FFE programmes Project Edison (7th grade), Next Level (8th-10th grade), Company Programme (upper secondary school), and Start-up Programme (short and medium-length tertiary educations).

The assessment studies, performed by FFE, focus on different ways of teaching entrepreneurship and distinguish between teaching *about*, *for* and *through* entrepreneurship, teaching methods, which have different effects at different education levels and on different types of students.

### **Teacher education and training**

Entrepreneurship education has become a mandatory component in the ordinary primary school teacher education. Entrepreneurship is also found in some of the pedagogics courses that are mandatory for newly employed teachers at the secondary and tertiary education levels. However, it was necessary to create real change in practices and the theoretical understanding of the educators to teacher training of a longer duration. This was addressed in the Danish national innovation strategy from 2012, "A Nation of Solutions".

Still, systematic teacher training in entrepreneurship education and continuing professional development is only done to a modest extent in Denmark. Teachers can participate in some isolated courses but thorough, coherent, and quality assured teacher training in entrepreneurship is generally missing. There have been several – usually regional – initiatives during the past years, but they often shut down after the project funds are spent or due to a lack of demand. For that reason, FFE started a new national initiative in 2015 with the purpose of building on existing best practices, developing and sustaining continuing education in innovation and entrepreneurship for teachers at all levels. For more information about the teacher training please, see the website of the Danish Foundation for Entrepreneurship.<sup>80</sup>

### **Engaging with businesses and private associations and organisations**

Private businesses and organisations are involved to a high degree at the overall national level (see above). They are sponsors of FFE's work and also support through non-financial means, for instance by acting as volunteer judges and advisors for pupils and students, at the big annual event Danish Entrepreneurship Award or at other competitions and events. The same involvement is seen on Bornholm, although at a smaller scale.

### **Meso level**

It requires a strategic and organisational overview of the school management to include entrepreneurship education in the normal education of the school or educational institution. School management (meso level), however, provides the very important link between a national/regional strategy (macro level) and teachers (micro level), who teach entrepreneurial skills to students. The meso level has often been overlooked, or

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<sup>80</sup> <http://www.ffe-ye.dk/undervisning/efteruddannelser/indsats-for-efteruddannelse>

given less attention, in a country's combined efforts to develop and implement entrepreneurship education. But contributing to a (new) ideal of education where students learn to act in an entrepreneurial and innovative way is not only a pedagogical and didactic exercise, it is also a managerial and organisational practice.

In order to map the meso level of the islands, and make the link between strategy and practice, a survey was sent to the school management of schools and institutions on Bornholm. The survey examines four main areas: School strategy & form, Organisation, Competence and Practice. The purpose of the survey is to provide an overview of the existing measures concerning a strategy for education in Innovation & Entrepreneurship in educational institutions, or the experience with activities related to innovation and entrepreneurship education in schools and institutions.

### ***Strategy & Form***

This area relates to background, motivation, challenges, objectives, common understanding, communication and evaluation.

3 out of 6 educational institutions on secondary and tertiary level on Bornholm have participated in the survey and like the other islands more than half of the participating institutions do not have a strategy for entrepreneurship education. One educational institution in the survey on Bornholm has a strategy for entrepreneurship education and the other two do not.

#### **The schools' plan and goals for development of entrepreneurship education**

The school with a strategy has a precise plan for the implementation of the entrepreneurship strategy and a plan for following up and revising the entrepreneurship strategy on a continuous basis. The educational institution has also created a common frame of understanding of entrepreneurship education and how to practise this form of teaching. This frame and plan have been communicated clearly across the educational institution (to teachers, students and other stakeholders such as cooperating partners outside the institution).

The management has also set several concrete targets and goals for development of entrepreneurship education.

The targets and goals are:

- How innovation and entrepreneurship shall be part of the teaching (e.g. as special courses and/or integrated in every-day teaching).
- The establishment of project weeks in innovation & entrepreneurship.

- The cooperation between teachers and local businesses, public institutions and organisations in relation with entrepreneurship education.
- The development of curriculum so that it contains learning objectives and competences for innovation and entrepreneurship.
- Continuing education of teachers in teaching innovation & entrepreneurship.

#### **No strategy but entrepreneurship activities**

Although two out of three schools have no entrepreneurship strategy, one of the participating educational institutions with no strategy nevertheless states that entrepreneurship teaching and/or activities related to entrepreneurship do take place at their educational institution. For instance students working with projects that bring them in contact with the surrounding society, and students being taught how to start a business or being taught in new and innovative ways. The educational institution also cooperates with the local business industry concerning students' education and further working life/career. The third institution in the survey has no activities at all.

#### **Importance of strategy and education in entrepreneurship**

Management from all three institutions on Bornholm agree that education in entrepreneurship is relevant to their students and that it is important for the institution to formulate a strategy for entrepreneurship. On a scale from 1 to 5 the data from Bornholm show a mean of 4.33 on the statement "It is important that my educational institution formulates a strategy for education in innovation & entrepreneurship".<sup>81</sup> This is slightly above the weighted mean from all the islands (3.90). The same mean (4.33) is found concerning the statement "It is relevant for all students at my educational institution to be taught innovation and entrepreneurship". Again, this is a slightly higher mean than the weighted mean of 3.94 from all islands.

#### **The importance of goals for entrepreneurship teaching**

Management from the three institutions agree on some of the statements as to why the institution should set goals for entrepreneurship teaching. They all agree that the goals should be set to strengthen students' interest in their further education and career and to strengthen students' interest in becoming an entrepreneur/starting a new business. This complies with what most institutions on all the islands believe.

Management on the institution with a strategy also believes that the goals should be set to prepare students better for working life and to boost the development of the

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<sup>81</sup> 1 = very much disagree, 2 = disagree, 3 = neither or, 4 = agree, 5 = very much agree.

local area, for instance by contributing to new businesses through the skill development of young people. Management also believes that the goals should be set to decrease the student dropout rate.

The two institutions with no strategy agree that goals should be set to strengthen the cooperation between the educational institution and the local society.

### **External network**

On Bornholm, all three institutions provide their students the possibility for making contact with the institutions' external network. They all provide this possibility through guest lectures given by local business people, entrepreneurs, or other external representatives. Like the other islands, this is the most common option for the students to make contact with the external network. Like 59% of all educational institutions in the survey, two thirds of the institutions on Bornholm provide exchange/trainee service in local businesses/organisations as a possibility. None of the institutions on Bornholm provide subject-/project weeks or -days in cooperation with external partners, and only one of the institutions (the one without a strategy) arranges visits to companies and arranges competitions, where external contacts function as judges.

### **The involvement from school governing body and local businesses**

As a resource in the work with entrepreneurship education, the degree of involvement from the governing body of the institution and the local businesses is quite different in the three institutions and reflects the existence of a strategy at the institution. On a scale from 1 to 5 the institution with a strategy has a high degree of involvement from both the governing body of the institution (5) and the local businesses (5) as a resource in the work with entrepreneurship education.<sup>82</sup> This is not the case when it comes to the two institutions without a strategy. At these institutions there is no involvement at all from the governing body (1) and only a low degree of involvement from local businesses (Mean: 2).

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<sup>82</sup> 1= not at all, 2=a small extent, 3=neither or, 4=to some extent, 5=to a high extent.



## **Organisation**

This area is related to topics such as resources, structures and expectations.

### **Resources, structure and expectations**

Not surprisingly, the only institution on Bornholm that has earmarked resources to entrepreneurship education such as financial resources, time and staff with knowledge and expertise on the area is the institution with a strategy. The other two institutions have no resources earmarked to the area.

Like most (82%) of the institutions in the survey (all islands), entrepreneurship teaching is a part of the timetables and the annual teaching plans at the institution with a strategy. This is not the case for the institutions without a strategy.

Moreover, the institution with a strategy has appointed a coordinator for entrepreneurship teaching, who has the full backing and practical support from management, and who is part of management. In addition, management has communicated their expectations to the teachers concerning where, when and how entrepreneurship teaching should be integrated at the educational institution. Management of the educational institution also requires from the teachers:

- That they describe in their annual plans how they integrate entrepreneurship in other subjects.
- That they include entrepreneurial learning objectives in their daily teaching and in the activities they set up with their students.

The educational institution also uses a feedback system to ensure that the teachers follow up on the pedagogical goals and objectives. The management also supports dialogue and cooperation between teachers from different disciplines through cross-curricular teaching and/or interdisciplinary project groups, through common facilities across the educational institution's subdivisions and dialogue and co-decision between teachers and students.

This is not the case on the two institutions without a strategy. However, one of them states that in the annual teaching plans, time has been allocated to entrepreneurial teaching courses of a longer duration, for instance project weeks, optional subjects, etc., and that the management supports dialogue and cooperation between teachers from different disciplines through cross-curricular teaching and/or interdisciplinary project groups.

## **Competence**

This area is about topics related to qualification, knowledge sharing, pedagogics, and cooperative relations.

### **Plan for teacher competence development**

When it comes to a plan for teacher competence development there is a difference between the institution with a strategy and the two institutions without. Presently, the institutions without a strategy do not have such a plan. The institution with a strategy has a plan for competence development and knowledge sharing within entrepreneurship education which takes place through the continuing education of teachers, knowledge sharing about entrepreneurship teaching, and special networks. Moreover, the teachers have a cross-curricular cooperation within the subject of entrepreneurship.

### **Experimenting with teaching forms**

The institution with a strategy allows the teachers to experiment with teaching forms through project work / feature weeks or days, cooperation with businesses and cross-curricular feature periods. Presently, management of the institutions without a strategy offer no such possibility.

### **Cooperation with the surrounding society**

Only the institution with a strategy is involved in cooperation and knowledge sharing with the surrounding society/local area through established business/industry, newly started businesses / entrepreneurs, Institutions within the public sector and other knowledge organisations. Presently, both institutions without a strategy are not involved in such corporation/knowledge sharing.

### **Extra-curricular activities**

The institution with a strategy offers extra-curricular activities in order to strengthen the entrepreneurial competences and mind-set of students. They offer incubator activities (to help students in their start-up activities), other forms of advice and guidance for student start-ups, entrepreneurship education given by entrepreneurs, student societies, organisational support in relation with innovation and entrepreneurship and business plan competitions. However, the institution does not organise networks between students and entrepreneurs/business industry. The institutions without a strategy do not offer any of the extra-curricular activities mentioned.

### *Practice*

This area is about topics that concern actual teaching forms and programmes, feedback, materials, and teachers' aids.

In practice, the educational institution with a strategy on Bornholm provides the teachers access to materials and teachers' aids, which can support their teaching in innovation and entrepreneurship. The institution also has experience with actual teaching forms and programmes within entrepreneurship. The institution also measures the impact of the entrepreneurship teaching before, during and after the course/teaching, and it continuously validates and revises the learning objectives for entrepreneurship teaching with a view to updating the current teaching programmes. The institution also develops its curriculum in cooperation with external stakeholders in order to get input concerning useful competences in future. The institutions without a strategy state that they do not have any of the practical tools mentioned.

### **Micro level**

The micro level concerns the implementation level, that is, the actual teaching taking place in educational institutions and the spread of this form of education, that is, how many students participate in this form of education on the island.

In the early phases of developing a national strategy for entrepreneurship education, this level often relies strongly on individual teachers' enthusiasm. Teacher training is limited with no or little in-service training. But as the island or country develops their activity on the area of entrepreneurship education, measures on the micro level become more systematised, the teachers' central role is increasingly recognised, good practice examples are identified, and teaching materials are being elaborated. At the more advanced stages, teachers are making increased use of national/regional or local support mechanisms such as training or exchange platforms. More teachers follow the good examples and are engaging with the entrepreneurship education agenda. This development is of course faster and easier when management of the national education institutions have a clear focus on and agenda for working in this field.

This chapter maps entrepreneurship education from the perspective of teachers in upper secondary education, vocational/VET and tertiary level education, on different parameters.

The share of pupils and students, who has received entrepreneurship education, is calculated on the basis of the total number of pupils and students on the island. It must be emphasised that this share may be inaccurate, as it is based on the responses

received. There may be other pupils and students who participate in entrepreneurship education but whose teachers did not participate in the survey for this mapping.

### *Upper secondary education*

At the upper secondary level, data have been collected by means of a questionnaire for the teachers. The purpose of the survey is to map the number of pupils in upper secondary education who participated in education or activities leading to increased competence levels in innovation and/or entrepreneurship in the school year 2015/2016.

The questionnaire is divided into four main categories.

*Basic information* consists of two questions about whether the teachers perceive that the school has a clear policy of integration of innovation and entrepreneurship in the education. The responses to these questions thus indicate a score that reflects the extent to which this is the case.

*Taxonomy* contains the following four dimensions: *action, creativity, environment and attitude*.<sup>83</sup> These terms refer to entrepreneurial competences, which are not necessarily a subject or subject knowledge in themselves but are competences to set initiatives in motion and create opportunities. As such, a high score in the teachers' perceptions of the fulfilment of these four indicators is desirable. The score in the four dimensions of the pupils and students who have received entrepreneurship education is compared to the scores of the pupils and students who have not received entrepreneurship education.

*Entrepreneurship* and setting things in motion is the foundation of entrepreneurship education. The total number of pupils and students having received entrepreneurship education in any given area is comprised of all pupils and students who have answered the questions regarding whether the pupil or student has received instruction in starting a business and/or tried starting up and gained experience starting a business affirmatively.

*Entrepreneurship education*, which is the percentage of pupils and students who have received entrepreneurship education, is calculated from the total number of pupils and students on the respective islands/areas. As mentioned above, reservations are taken about the accuracy of this share.

In Table 1 below, the overall results for the upper secondary level is presented. The scale from 1–7, which was used in the survey, has been converted to a new scale, which spans from 1–100. This ensures that all answers in the survey can be compared.

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<sup>83</sup> Please see "A Taxonomy of Entrepreneurship education" for further elaboration on the entrepreneurial dimensions.  
<http://eng.ffe-ye.dk/media/555477/taksonomi-eng-2.pdf>

A total of 8 teachers have answered the survey. All together, they represent 468 students divided on 19 classes. Overall, 214 pupils at the upper secondary level on Bornholm have encountered entrepreneurship education in the 2015/2016 school year.

As is evident in Table 1 the teachers experience a clear policy on innovation and entrepreneurship to a higher degree than average. The score for this question is 32 and 31, respectively, which is above the average of 26 and 27, respectively. This should be seen in the context of the teachers stating that 42% of the classes in this survey has received instruction in business start-up. However, the percentage of students, who have realistic experience starting a business, is only 16%. This is significantly lower than the 24% that emerge in the total results.

**Table 1: The results for upper secondary level**

Subject	Variable	Bornholm, Denmark
Basic information	Policy on innovation	32
	Policy on entrepreneurship	31
Taxonomy	Action	35
	Creativity	44
	Environment	56
	Attitude	41
Entrepreneurship	Teaching in start-up percentage	42
	Realistic experience with start-up, percentage	16
Entrepreneurship education	Number of students receiving entrepreneurship education	214
Score for students receiving entrepreneurship education	Action	54
	Creativity	67
	Environment	90
	Attitude	68
Score for students <i>not</i> receiving entrepreneurship education	Action	21
	Creativity	27
	Environment	32
	Attitude	20

Note: The results are comprised of answers from 8 teachers with a total of 19 classes and 468 students.

Considering the four entrepreneurial parameters, the score for pupils, who have received entrepreneurship education on all four parameters; *action, creativity, outward orientation* and *attitude*, is more than double that of the pupils who have not received entrepreneurship education.

## Vocational/VET

At vocational/VET level, data have been collected by means of a questionnaire directed at the teachers. The purpose of the survey is to map the number of pupils in vocational/VET who in the school year 2015/2016 participated in education or activities leading to increased competence levels in innovation and/or entrepreneurship.

The questionnaire is divided into four main categories.

*Basic information* is comprised of two questions. They concern whether the teachers experience that their school has clear policies on innovation and entrepreneurship in education, respectively. The scores for these questions thus reflect to what degree that is the case.

*Teaching*, which focuses on the degree to which the teachers experience that the students have participated in innovation and entrepreneurship education in class instruction and courses, as clear subjects in their practical training and internships as well as clear subjects in their apprenticeship tests.

*Entrepreneurship* and setting things in motion is the foundation for entrepreneurship education. The teachers were asked whether the pupils have participated in feature weeks, camps, projects or the like focusing on innovation and entrepreneurship, respectively. In addition, the teachers were asked whether the pupils had participated in other innovation or entrepreneurship projects. If the answer is yes to any one of these questions, the pupils are included in the total number of pupils and students who receive entrepreneurship education. As such, there are three different questions which all play a part in determining whether the pupils have received entrepreneurship education.

*Entrepreneurship education* thus indicates the number of pupils who, based on the abovementioned questions, receives entrepreneurship education. The share of pupils and students who has received entrepreneurship education is based on the total number of pupils and students on the respective islands/areas. As mentioned above, reservations are taken about the accuracy of this share.

In Table 2, the overall results for vocational/VET are presented. The scale from 1–7, which was used in the survey, has been converted to a new scale, which spans from 1–100. This ensures that all answers in the survey can be compared.

The results in Table 2 show that the teachers perceive that there is a clear policy on innovation and entrepreneurship. The respective scores of 47 and 42 are both significantly above the average of 33 and 32, respectively.

With regard to the teaching situation, the teachers' answers are very close to the average in finding that most of the pupils have had innovation and entrepreneurship as clear topics in their practical training and internships as well as during class instruction. However, according to the teachers, the students only to a low degree encounter innovation and entrepreneurship in their apprenticeship tests.

**Table 2: The results for vocational/VET**

Subject	Variable	Bornholm, Denmark
Basic information	Policy on innovation	47
	Policy on entrepreneurship	42
Teaching	Innovation in subject/course	39
	Innovation as a clear topic in practical training/apprenticeship	33
	Innovation as a clear topic in apprenticeship test	11
	Entrepreneurship in subject/course	28
	Entrepreneurship as a clear topic in practical training/apprenticeship	33
Entrepreneurship	Entrepreneurship as a clear topic in apprenticeship test	11
	Innovation, percentage	67
	Start-up of business / Entrepreneurship, percentage	50
	Other, percentage	33
Entrepreneurship education	Number of students receiving entrepreneurship education	111

Note: The results are comprised of answers from 6 teachers with a total of 6 classes and 115 students.

More than half of the classes, 67%, have participated in feature weeks, camps, projects or the like focusing on innovation, whereas half the classes have participated in similar feature weeks, camps etc. with a focus on business start-up and entrepreneurship. 33% have participated in other innovation or entrepreneurship programmes.

A total of 6 teachers have answered the survey. All together, they represent 115 pupils divided on 6 classes. Overall, 111 pupils at vocational/VET level on Bornholm have encountered entrepreneurship education in the 2015/2016 school year.

### *Upper secondary and vocational/VET*

The total number of pupils receiving entrepreneurship education in the 2015/2016 school year in both upper secondary education and vocational/VET on Bornholm is 325. That is the equivalent to 21.7% of the 1,500 pupils in the upper secondary education and vocational/VET on Bornholm.

In comparison, a mapping in the 2014/15 school year shows that 36.9% of pupils in upper secondary education and vocational/VET in Denmark participate in entrepreneurship education.<sup>84</sup> However, this percentage includes pupils and students receiving teaching materials published by the Danish Foundation for Entrepreneurship

<sup>84</sup> <http://www.ffe-ye.dk/media/783586/samlet-notat-omkring-kortlaegningstal-2014-15.pdf>

(hand-outs as well as downloads) in Company Programme as well as in particular educational activities such as regional projects, supported projects, competitions etc.

### *Tertiary level*

For the purpose of mapping entrepreneurship education at the tertiary education level, the islands were asked to send course descriptions of courses within innovation and entrepreneurship or courses that resemble this kind of teaching at this level along with the number of students partaking in these courses during the academic year 2015–16. The received course descriptions were then screened on the basis of the categories in the Star Model – a model for identifying entrepreneurship courses.

In the Star Model courses and subjects are categorised according to how much focus they put in the individual categories of the model. Apart from identifying a course or subject as entrepreneurship education, the model can be used to get an image of how much emphasis is put on entrepreneurship in the form of content or teaching methodology in a course/subject. The model and method is used exclusively to identify the extent to which the course/subject focuses on entrepreneurship, it is not an evaluation or assessment of the quality of the course/subject as such.

Bornholm has provided information about six educations at the tertiary level, three of which have been identified as entrepreneurship education or as containing elements of innovation and entrepreneurship. The table below lists the educations and the number of participating students during 2015–16.

**Table 3: The results for the tertiary level on Bornholm**

Course	Number of students 2015–16
Teacher (Håndværk og Design)	12
Bachelor in Design	18
Academy Profession Degree in Service, Hospitality and Tourism Management	12



### **Teacher**

Innovation and/or entrepreneurship are referred to in six different teaching subjects of the teacher education (for primary and lower secondary school), but only the teaching subject "Håndværk og Design" can be characterised as entrepreneurship education. Håndværk & Design was introduced as a mandatory subject at the primary level (4th–7th grade) with the Danish school reform in 2014. It is method-based entrepreneurship education focusing on the idea phase in the entrepreneurial process and in the category student participation.

### **Bachelor in Design**

According to the description of the module "Form and function in Glass and Ceramics" on the first semester, the student must work with "the development from idea to finished product/prototype". In the module "Business cooperation" in the fourth semester, the student is introduced to "management of your own business" in relation with the students' "reflections about own career and possibilities [as a craftsman] after finished education".

These two references do not suffice to meet the criteria of the Star Model to evaluate this education's level of innovation and entrepreneurship content, but they nevertheless relate to the process of innovation and self-employment and therefore the education is identified as containing elements of entrepreneurship education.

### **Academy Profession Degree in Service, Hospitality and Tourism Management**

The education contains the courses "Creativity and innovation 1", "Creativity and innovation 2", which are identified as entrepreneurship education. For instance, the students must be able to use different tools to practical idea development and creativity in a practice-oriented context.

Moreover, the education contains the courses "Strategy and business plan" (1 and 2), where the students must obtain knowledge about and learn to use models and methods for working out a business plan. In the courses "Service marketing and trends" (1, 2 and 3), the students must obtain knowledge about and be able to identify relevant market and customer conditions for a given business, as well as be able to identify relevant conditions for the service company's choice of a strategy for internationalisation.

The education also contains courses about "Business economics" (1.2 and 3), where the students obtain knowledge about financial management, accounting, budgeting, and evaluation of the economic development of a business. The student must moreover learn about the global economic cycle, including macroeconomics, and be able to negotiate and give presentations in English.

The education moreover contains courses on “Business communication and networking” (1.2 and 3) as well as “Intercultural competency” (1 and 2) that relate to some of the categories in the Star Model.

Finally, the education involves a trainee period in an existing service company where the student is part of the daily operations and development-oriented working processes and job functions in the company, and where he or she works on a particular project about a practice-oriented problem.

The education focuses mostly on intrapreneurship, because the descriptions focus on existing service businesses.

Summing up, three educations at the tertiary level on Bornholm are identified as entrepreneurship education. The total of participating students in these educations during 2015–16 were 42. This corresponds to 7.3% of the total number of higher education students on Bornholm. The total number of higher education students on Bornholm during 2015–16 was 574. In comparison, at the national level, the percentage of Danish tertiary level students who participated in entrepreneurship education in all Danish tertiary education institutions was 13.7% in 2014–15. The percentage of Danish tertiary level student who participated in entrepreneurship education in 2015–16 is 15.8%.

## Micro Grant

Since 2011, the Danish Foundation for Entrepreneurship has awarded Micro Grants to students at upper secondary and tertiary level with entrepreneurial ambitions. Initially, the Micro Grants initiative was a pilot project but, since 2014, the Micro Grant initiative has taken the form of a larger programme. The Micro Grant should be viewed as an extra-curricular initiative and thus as a continuation of entrepreneurial education and the competences which the students obtain through their education. The objectives of the Micro Grant Initiative are to enhance growth and employment. By supporting student start-ups, the long-term objective is to create growth companies that can contribute with more jobs, export incomes and societal growth. On a yearly basis, approx. 250 applications are submitted (corresponding to approx. 1,000 students) in Denmark, and approx. 65% of them have participated in entrepreneurship education. 70 grants (DKK 2.5 million) are handed out on an annual basis.

Analysis shows that the Micro Grant Initiative has a catalytic effect and contributes to enhancing employment in Denmark.<sup>85</sup> Only 4–12 months after receiving a Micro

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<sup>85</sup> <http://www.ffe-ye.dk/media/699249/effektmaaling-mikrolegater-oktober-2015.pdf>

Grant 50 grant recipients created the equivalent of 79 full-time positions in Denmark. Put in another way: For every million invested more than 40 full-time positions have been created in the period. Micro Grant recipients also actively seek new capital after receiving a grant. Two out of three grant recipients have had contact with private investors after they received the Micro Grant. Nine grant recipients have achieved growth capital (up to DKK 2.3 million) within 4–12 months. None of the control group achieved further growth capital in the period.

On Bornholm, there are two upper secondary educational institutions and four tertiary educational institutions. The total number of students in the school year 2015–16 is 1,500. At present, there are no funds earmarked for student start-ups on Bornholm. However, pupils and students can apply for a Micro Grant offered by the Danish Foundation for Entrepreneurship.

During the project trial of giving Micro Grants of DKK 25,000 on Bornholm, two applications from student start-ups were received. Normally, a student start-up is comprised of 2 to 6 pupils or students. The recipient has participated in a 5-week career course through the educational institution. The course contained entrepreneurship education as well as career mentoring and coaching. The Micro Grant was marketed through the local newspaper as well as other media (local radio, television and websites), in newsletters on facebook as well as through the local Business Center Bornholm.

### *Effects*

For the student start-up, the Micro Grant will have significant effect. The Micro Grant recipient, Sara, says:

“The grant means that I have had the opportunity to get out there and pitch my product to a wider audience and have actually had orders with some great retailers. Hopefully, this means that my brand is strengthened and has a farther reach than before. Further, I have established contact to several people in PR who have helped me expose my products in the press. In addition, the video has made it much easier for me to share my message on social media and as such reach more people.”

She continues:

“I am definitely motivated to continue working here on the island and stay on the same track. Hopefully, the increase in demand, which the Micro grant and my participation at the trade show facilitated, will generate jobs in production – either hired by me privately or at Keramikfabrikken at Bright Park in Nexø. It has been a good start for me, considering the fact that I finished my education two months ago. Long term, my vision is that Oh Oak will grow larger and become a broader design business and include more than ceramics.”

The grant has been spent on participating in the interior and design trade show Nortmodern as well as a video telling the story about the products and supporting the brand building effort.

### *Needs and possibilities*

During the process, the student start-up has applied for and received help and guidance at Business Center Bornholm. However, there is still a need for guidance, she states: "The financials definitely take up a lot of my time. I need help with the daily accounting, but also guidance with regard to future visions like how to get in contact with investors to boost the business."

### *Micro Grant recipient*

#### **Oh Oak**

I produce handmade ceramic utility products for everyday use which are strongly inspired by the nature on Bornholm. It is important to me that my products have a sensuous quality to them that makes them stand out in a branch of trade where competition is tough but where, at the same time, there is a great lack of products that appeal to the tactile sense especially.

My products are aimed at the quality-minded consumer who doesn't mind paying extra for a handmade product, which tells a different story than the product that can be bought at the local supermarket.

## **Future entrepreneurial potential**

The biggest challenge for Bornholm when it comes to the demographic development is the fact that the share of the population aged 0–24 has decreased immensely while the old age dependency has increased considerably. Changes meaning that the older part of the population is increasing at a very fast rate. At the same time, Bornholm has the lowest education level of all Danish regions and the employment rate on Bornholm has decreased by more than 10%, which is the most negative development of all Danish regions.

Based on the objective of creating solutions that will entail positive effects for Bornholm, the first objective for this pilot project has been to ensure a mapping of entrepreneurship education in the area. There is no or only limited prior data available for mapping entrepreneurship in the educational sector in Bornholm. Knowing the present situation on the island the second objective has been to define the potential for

entrepreneurship education and Micro Grants on Bornholm from 2016/2017 to 2020/2021. This forecast includes economic measures and is based on six years of experience and development rates from the Danish Foundation for Entrepreneurship.

The ambition in the long term is that new companies will follow from initiatives implemented and more students will obtain skills and competences that will enable them to create and establish new companies. Thus, the aim is that young people on Bornholm learn how to act on opportunities and good ideas and how to convert these ideas into economic, social and/or cultural value for others. As a whole, the continuation of this pilot project is about enhancing the market position of Bornholm internationally and contributing to a sustainable development, growth and jobs.

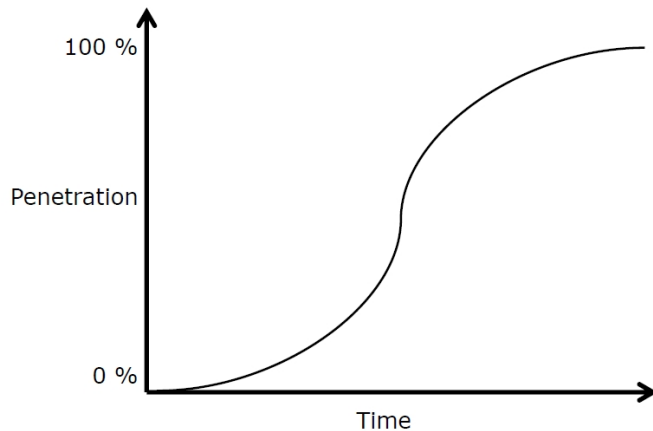
### *Forecasting entrepreneurship education and Micro Grants for Bornholm*

This pilot project is the first step in securing a solid foundation for implementing and anchoring future initiatives on Bornholm. The quantitative objective is to ensure that young people at different educational levels will engage in entrepreneurship education at least once during their education and that resources for student start-ups are available.

Vital for this development is an informed forecast in terms of the possible percentage increase in students receiving entrepreneurship education, student start-ups receiving a Micro Grant and the annual costs to obtain this increase over a period from 2015/2016 to 2020/2021

When looking at the penetration rate for entrepreneurship education it develops according to an S-curve (Figure 1). Bornholm is in the stage where the curve is steep and initiatives and strategies will have a relative high effect on the penetration rate.

Figur 1: S-curve for entrepreneurship education penetration rate



The forecast is presented in Table 3 and Figure 2 below.

The forecast is based on:

- The data collection and findings in this report.
- Stakeholder insights and comments from Bornholm.
- The maturity level on the island with regard to entrepreneurship in education (The "s-curve").
- Development rates from Denmark and Bornholm (2010–2016).
- The average of total costs per student during the last three years in Denmark (including development, Micro Grants and administration/operation costs e.g. salary, travel expenses, communication etc.).

And the forecast is based under the assumptions that:

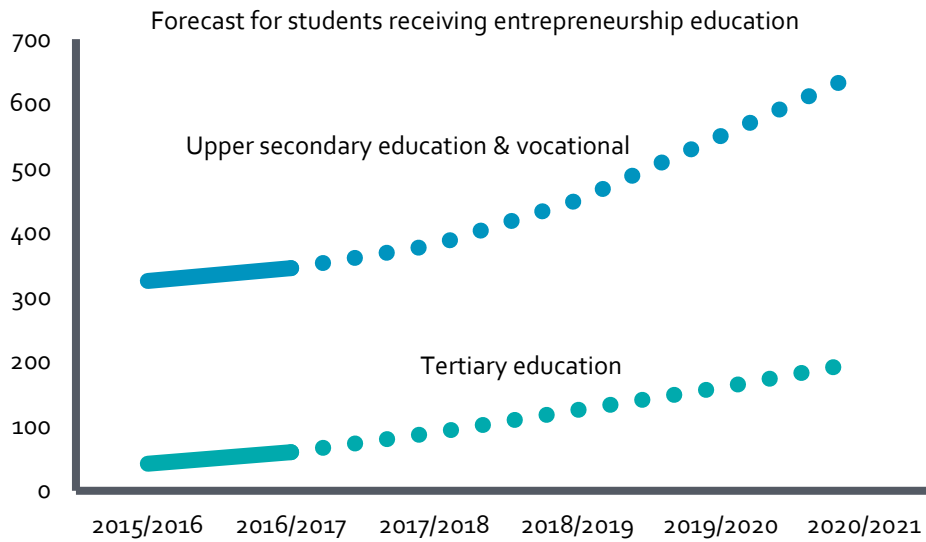
- There are no changes from school year 2015/2016 to 2016/2017.
- The number of students is constant.
- A percentage increase in the number of students receiving entrepreneurship education which corresponds to the historic percentage increase in Denmark.
- Annual costs per student corresponding to the annual costs per student in Denmark (based on the average of total costs during the last three years).

It is important to bear in mind that the forecasts cannot be made with 100% accuracy, but are estimates.

**Table 4: Forecast for Bornholm**

Forecast for entrepreneurship and micro grants until the school year 2020/2021. Bornholm, Denmark						
	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	2020/2021
<b>Upper secondary education &amp; vocational/VET</b>						
Students in total	1,500	1,500	1,500	1,500	1,500	1,500
Students receiving entrepreneurship education, forecast	325	345	380	450	550	650
Share of students receiving entrepreneurship education, percentage	21.7%	23.0%	25.4%	30.0%	36.7%	43.3%
<b>Tertiary education</b>						
Students in total	574	574	574	574	574	574
Students receiving entrepreneurship education, forecast	42	60	90	125	160	200
Share of students receiving entrepreneurship education, percentage	7.3%	10.5%	15.7%	21.8%	27.9%	34.8%
<b>Applicants receiving a grant</b>						
Accepted applicants	1	2	3	4	5	6
Average annual costs (4 years) in DKK	DKK 1,300,000–1,700,000					

Figure 2: Forecast for Bornholm



### Recommendations for Bornholm

- A national operator/ responsible organisation is important to secure implementation and make the link between political level and the educational sector.
- A specifically dedicated budget for development and activities is necessary. There are only limited resources for entrepreneurship education and limited resources for student entrepreneurs on Bornholm. Financial resources should be allocated both at national and local level (on the island). This should be a collaborative effort between public and private sector.
- Strong stakeholder relations are essential. Private sector, public sector and the educational institutions should cooperate when implementing the national and regional strategies. The FFE Region Bornholm is an example of such collaborations on regional level. Private businesses and organisations are involved in the work with entrepreneurship education on Bornholm. They sponsor the work of FFE Region Bornholm and support through non-financial means, for instance by acting as volunteer judges and advisors for pupils and students, at competitions and events. However, more initiatives are needed such as collaboration between FFE Region Bornholm and the municipality of Bornholm. This could for instance be about implementing innovation guides in schools and by ensuring better conditions for young entrepreneurs.



- Support and collaboration with schools and educational institutions on all levels. Danish research shows that in order to achieve the greatest effects entrepreneurship education must be differentiated at the respective levels of education and must be provided to pupils as early as possible during their education. Entrepreneurship in higher education is the most effective way to foster long-run student start-ups.
- Collecting data to secure knowledge on the development in penetration of entrepreneurship education should not be underestimated. Mapping entrepreneurship education and later on making impact studies is vital for the support from ministries and private sector.
- Involvement from school management and building strategies at education institution level is essential. School management provides the very important link between a national/regional strategy level and implementation level in the form of teachers who teach entrepreneurial skills to pupils and students. Contributing to a (new) ideal of education where students learn to act in an entrepreneurial and innovative way is not only a pedagogical and didactical exercise, it is also a managerial and organisational practice.
- Communicating the educational institutions entrepreneurship strategy to all stakeholders both internally (teachers and students) and externally to collaborating partners outside the institution is essential for the strategy to have an impact on the penetration rate for entrepreneurship education on the island.
- A plan and resources for providing and ensuring the teachers the necessary competences on the area are necessary elements from the beginning. There are no or limited resources for entrepreneurship teachers competence development (e.g. further education in entrepreneurship teaching and networks) on the seven islands.
- Bornholm has access to Junior Achievement programmes and country specific teaching programmes, all of which are tested and functioning entrepreneurship teaching programmes. Studies show that JA programmes subsequent creates significantly more entrepreneurs and higher income and they have a positive impact on the pupils' motivation to study, their school engagement and their academic confidence and they have a positive impact on the primary school pupils' grades.<sup>86,87,88</sup>

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<sup>86</sup> Elert, Andersson & Wennberg (2015) developed a propensity score matching on three cohorts of Company Programme pupils, who had finished their training 11 years earlier. 10,103 CP-pupils were matched with 214,735 non CP-pupils.

<sup>87</sup> Johansen (2008) conducted a survey on 1,400 9th grade pupils and 1,700 VET pupils.

<sup>88</sup> Johansen and Schanke (2014) conducted a survey on 1880 secondary pupils and 1160 primary school pupils who participated in Junior Achievement's programmes.

- Extra-curricular entrepreneurship activities such as; incubators, business plan competitions and advice and guidance for student start-ups could be a supplement to the curricular teaching and thus function as a job creator. This is particularly relevant for educational institutions at tertiary level.
- A small financial aid (Micro Grant) to student start-ups in the initial phases of the start-up process has proved (in Denmark) to have a catalytic effect and contributes to enhancing employment. The recipients of the grant also actively seek growth capital after receiving a grant. This could supplement the entrepreneurship teaching and help create new start-ups on the island. However, it takes time before the students have become accustomed to applying for this grant.
- Whenever possible, synergies across the Nordic islands should be utilised.

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## Appendix A. A Progression Model for Entrepreneurship Education Ecosystems in Europe<sup>89</sup>

Table 5: A Progression Model for Entrepreneurship Education Ecosystems in Europe

Stage	Pre-Strategy (based on individual initiative)	Initial Strategy Development	Strategy Implementation and Consolidation & Development of Practice	Mainstreaming
Indicative timeframe	Starting position	0–2 years	c. 2–5 years	c. 5 years +
National strategy, <sup>90</sup> frameworks	No formal strategy in place. Entrepreneurship education covered – if at all – in disparate policy documents. Little or no effective inter-ministerial cooperation. No or rudimentary platforms for dialogue with relevant social partners.	Development and promulgation of strategy, with identification and agreement of entrepreneurship education objectives and of competences, roles and responsibilities of key players. Mechanisms being established for cooperation between key ministries. Platforms being established to include wider stakeholders. Vision (and intended outcomes) in process of being determined, which may involve reconciling competing agendas within government and between public and private sectors etc. Mapping and analysis of entrepreneurship education. Good practice examples being identified. Collection of effective teaching methods and materials. Launching of communications campaigns to stimulate interest of business community. Awareness raising with teachers.	Specification of learning outcomes, objectives, indicators and targets. Methods being developed for assessing learning outcomes; and development of appropriate qualifications. Regular cooperation mechanisms being embedded at various levels of system, with relative roles and responsibilities of different stakeholders clearly defined and accepted. Development of funding streams: allocation of dedicated resources. Implementation support mechanisms being put in place. Resource banks of teaching materials available. Dissemination and broad-based application of the effective teaching methods identified. Research base being developed.	On-going monitoring and regular evaluation of entrepreneurship education in terms of quality of activity and learning outcomes being achieved. Implementation support mechanisms part of everyday teacher and school development; entrepreneurship education fully integrated into initial teacher training for every teacher. Continuous application and refinement of effective teaching methods. Robust funding mechanisms established.

<sup>89</sup> *Towards Greater Cooperation and Coherence in Entrepreneurship Education*, European Commission, 2010.

<sup>90</sup> Or regional strategy and frameworks depending on governance structures.

Stage	Pre-Strategy (based on individual initiative)	Initial Strategy Development	Strategy Implementation and Consolidation & Development of Practice	Mainstreaming
Indicative timeframe	Starting position	0–2 years	c. 2–5 years	c. 5 years +
Schools	Penetration of entrepreneurship education highly variable; much ad hoc activity. Tends to be an “add-on” to the mainstream curriculum with emphasis on “entrepreneurship” as running a business. Tends to be focused in secondary education and in specific subjects. No or sporadic formal assessment of learning outcomes. Use of (unaccredited) prizes and awards to recognize achievement.	Role of schools articulated in strategy – recognition of central role. Entrepreneurship education starting to be developed across the curriculum as an embedded set of competences, not just as a separate subject. Development of entrepreneurship education beyond secondary level especially, e.g. at primary level: and school clustering.	Entrepreneurship education being made available in every school, embedded within the curriculum as part of the overall teaching concept and also as a separate subject. Progressive establishment of partnerships with businesses in all schools (e.g. through pilots).	High quality entrepreneurship education being made available to every student in every phase/type of education. Clear linkages established between different phases/types of education. Progressive development of wider linkages as part of development of local entrepreneurship ecosystem. Learning outcomes assessed.
Teachers	Strong reliance on individual teacher’s enthusiasm. Entrepreneurship education often delivered outside core school hours as extra-curricular activity. Teacher training very limited. No or little in-service training.	Role of teachers articulated in strategy – recognition of central role. Good practice examples being identified of: teacher training; teaching materials.	Teachers making increasing use of national/regional and local support mechanisms (e.g. training or exchange platforms). Use of pilots to spread good practice and increase numbers of teachers engaging with entrepreneurship education agenda. Initial or in-service training on entrepreneurship made available to all interested teachers.	All teachers receiving entrepreneurship education as an integral part of their initial and their continuous in-service teacher training. All teachers teaching entrepreneurship education as integral part of the curriculum.
Regional and local authorities <sup>91</sup>	Patchy involvement: some authorities involved in development of local partnerships; others not involved at all.	(Potential) role of local authorities considered in strategy development process. Development of good practice examples of school clusters and education-business partnerships at local level.	Local authorities playing an increasingly important role in school cluster development and education-business links.	Full participation of local authorities in organising entrepreneurship education. Possible establishment of statutory requirement for organisation of partnerships based on municipality geography.
Businesses, private associations and organisations	Involvement of businesses tends to be patchy, unstructured, and often reliant on individual initiative by parents. Use of programmes developed by private organisations (e.g. JA) tends to be ad hoc on individual school basis .... but plays vital role in providing essential experiential and “hands-on” learning.	Key role of businesses and private organisations articulated in strategy. Businesses (increasingly) involved through social partner organisations in policy development and in delivery of entrepreneurship education in schools.	Consideration of potential to upscale the role played by businesses and private organisations in entrepreneurship education: extension and deepening of that role. Businesses being more systematically engaged at local level – movement away from ad hoc approaches to establishment of mechanisms for brokerage and establishment of long-term, sustainable relationships with schools.	Full participation of businesses in entrepreneurship education in all schools/universities. Businesses support for entrepreneurship education at all levels increasingly delivered through structured channels, e.g. education-business partnerships, organised brokerage.

<sup>91</sup> The role of regional and local authorities depends on the distribution of responsibilities between tiers of government.

Figure 3: An investor and a young entrepreneur in the garden at the Impact Investor Ball



Photo: Rasmus Degnbol.

## Appendix B. “The Star Model” – a method for identifying entrepreneurship education

“The Star Model” was developed by Øresund Entrepreneurship Academy with the purpose to identify and quantify entrepreneurship education courses in Danish universities. It was later updated by the Danish Foundation for Entrepreneurship to use for short and medium-length tertiary educations also.

Courses and subjects are categorised and given 1–3 stars according to how much focus they put in the individual categories of the model. Apart from identifying a course or subject as entrepreneurship education, the model can be used to get an image of how much emphasis is put on entrepreneurship in the form of content or teaching methodology in a course/subject. The model and method is used exclusively to identify the extent to which the course/subject focuses on entrepreneurship, it is not an evaluation or assessment of the quality of the course/subject as such.

Figure 1 below illustrates the overall structure of “The Star Model” which consists of two dimensions 1) Teaching design and 2) Phases in the entrepreneurial life cycle. The categories under Teaching design on the horizontal axis are divided into two main categories each of which describes the subject content and teaching approaches and methods, which together form a unifying concept for the pedagogics, didactics and methods which characterise the teaching or education. The categories on the vertical axis describe the phases in the entrepreneurial life cycle. To read more about the Star Model, see the report about examination forms, *Eksamensformer*, on the website of the Danish Foundation for Entrepreneurship.<sup>92</sup>

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<sup>92</sup> <http://www.ffe-ye.dk/videncenter/entreprenorskabs-undervisning/eksamensformer>

**Table 6: The Star Model**

Teaching design								
Subject-related content					Teaching approaches and methods			
Phases/ Categories	Intrapre- neurship	Entrepre- neurship	Finance/ VC	Law	Practical dimensions	Student participation	Interdisci- plinary	International dimensions
Idea								
Beginning								
Growth								
Running								



## Appendix C. Demographic data on the seven islands

**Table 7: Population changes (increase and decrease) in % between 2009 and 2015**

Unit	Changes in total population	Changes in population aged 0–24	Changes in population aged 25+	Changes female ratio	Youth dependency changes*			Old age dependency changes**		
	2009–2015	2009–2015	2009–2015	2009–2015	2009	2015	Change	2009	2015	Change
Norway	7.6	6.0	8.4	-1.6	28.7	27.4	-4.4	22.1	24.5	10.9
Andøy	-0.8	-2.0	-0.4	-2.3	29.0	25.3	-12.7	33.2	37.9	14.1
Finland	2.7	-0.7	4.2	-0.6	25.2	25.7	2.2	25.2	31.3	24.2
Pargas	0.5	-2.3	1.7	-0.5	27.1	27.8	2.6	30.9	40.0	29.5
Denmark	2.7	2.6	2.8	-0.4	27.8	26.4	-5.0	24.1	28.8	19.5
Bornholm	-6.4	-14.3	-3.6	-0.7	25.5	23.0	-9.6	33.2	44.6	34.5
Faroe Isl	-0.9	-4.3	0.9	1.4	34.4	34.5	0.4	22.2	26.9	20.9
Greenland	-0.3	-7.9	4.6	1.0	32.9	29.8	-9.4	9.3	10.7	15.2
Sweden	5.3	4.8	5.5	-1.0	25.4	27.3	7.4	27.1	31.1	14.8
Gotland	0.4	-4.8	2.6	-0.7	22.9	24.6	7.3	31.0	39.2	26.5
Iceland	4.1	0.9	4.2	2.2	30.9	30.8	-0.3	17.2	20.5	19.2

Note: \* population aged 0–14 as a share of population aged 15–64. \*\* population aged 65+ as a share of population aged 15–64.

Source: National statistical institutes and Eurostat.

**Table 8: Increase and decrease in employment and education rates of the population 2009–2013**

Unit	Employment rate*			Unemployment rate**			Youth unemployment rate***			Tertiary education****
	2009	2013	Change	2009	2013	Change	2009	2013	Change	2014
Norway	76.6	75.6	-1.3	3.2	3.5	9.4	9.2	8.6	-6.5	
Andøy	75.6	72.8	-3.7	2.8	4.8	71.4		12.7		26.6
Finland	68.4	68.4	0	8.4	8.4	0	21.5	19	-11.6	
Pargas	74.5	73.2	-1.7	4.9	4.6	-6.1		14.3		43.2
Denmark	75.1	72.3	-3.7	6.1	7.2	18.0	11.8	14.1	19.5	
Bornholm	68.8	69.3	0.7	8.9	8.9	0		19.7		23.7
Faroe Isl	88.1	90.8	3.1	4.8	3.9	-18.8		9.9		35.9
Greenland	64.9	63.3	-2.5	7.5 (2010)	9.7	29.3		17		14.4
Sweden	72.4	74.5	2.9	8.5	8.3	-2.4	25	23.7	-5.2	
Gotland	74	77.4	4.6	8	6	-25				31.1
Iceland	78.3	81.1	3.6	7.2	5.4	-25	16	13.6	-15	

Note: \* number of employed persons as a share of the population aged 15–64.

\*\* total number of unemployed persons as a share of the labour force (labour force is made up by the total number of persons employed or looking for a job).

\*\*\* unemployed persons aged 15–24 as a share of the labour force aged 15–24.

\*\*\*\* persons with a tertiary education as a share of the population aged 25+.

Source: National statistical institutes and Eurostat.