

Regeringskansliet  
Utbildningsdepartementet

Luntnakargatan 13, Box 7851,  
SE-103 99 Stockholm, Sweden  
Tfn/Phone: +46 8 563 085 00  
Fax: +46 8 563 085 50  
hsv@hsv.se, www.hsv.se

Erik Roos  
08-563 086 09  
erik.roos@hsv.se  
BESLUT

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### **Granskning av intresseanmälningar gällande spetsutbildningar inom entreprenörskap och innovation (ert diarienummer U2008/7251/UH)**

Högskoleverket har fått i uppdrag av regeringen att rangordna utbildningar som anmält intresse för att medverka i en särskild satsning från regeringen för att utveckla spetsutbildningar inom entreprenörskap och innovation.

Regeringen har bjudit in lärosäten som är intresserade av att delta i en satsning på spetsutbildningar inom entreprenörskap eller innovation att komma in med en intresseanmälan. Högskoleverket har fått i uppdrag att granska intresseanmälningarna. Instruktioner för intresseanmälan utarbetades och en internationell expertpanel rekryterades. I panelen ingår: professor Alain Fayolle, EMLYON Business School, professor Daniel Hjorth, Copenhagen Business School, professor Paula Kyrö, Helsinki School of Economics, professor Luigi Serio, Fondazione ISTUD Business School, Stresa.

Bedömningen av utbildningarnas potential att uppnå högsta internationella klass har sin utgångspunkt i Högskoleverkets kvalitetsaspekter för framstående utbildningsmiljöer. Aspekterna har dock utvecklats något för att anpassas till ovan nämnda regeringsuppdrag. Bedömggruppen genomförde en analys och bedömning av samtliga 11 inkomna intresseanmälningar. Resultatet av granskningen var att fyra miljöer gick vidare till fördjupad granskning och möten med respektive utbildningsanordnare. Baserat på intresseanmälningarna och samtalen vid mötena har expertpanelen gjort en rangordning av utbildningarnas möjligheter att utvecklas till högsta internationella klass. Expertgruppens rapport bifogas beslutet.

### **Högskoleverkets bedömning**

Högskoleverket rangordnar utbildningarna enligt expertpanelens rekommendationer:

1. Gothenburg Schools of Entrepreneurship, Chalmers tekniska högskola och Göteborgs universitet.
2. Master's Programme in Entrepreneurship, Lunds universitet.
3. International Master's Programme in Entrepreneurship and Innovation, Högskolan i Jönköping, Växjö universitet och Högskolan i Kalmar.
4. Business Innovation and Technology-based Entrepreneurship, Kungliga Tekniska högskolan.

Beslut i detta ärende har fattats av universitetskanslern Anders Flodström efter föredragning av utredaren Erik Roos i närvaro av tf avdelningschefen Joakim Palestro, planeringssekreteraren Carolina Johansson och informationschefen Eva Ferndahl.

Anders Flodström

Erik Roos

För kännedom:  
Respektive kontaktperson för intresseanmälan

# Appraisals of Swedish entrepreneurship education proposals



# The panel of international experts' report

The Swedish government invited applications from those higher education institutions who were interested in participating in a venture to develop world-class educational programmes in entrepreneurship and innovation. Högskoleverket (Swedish National Agency for Higher Education) was commissioned to examine the applications.

Eleven units submitted applications, hoping to be considered on the basis of their potential to develop educational programmes in entrepreneurship and innovation to world-class standard. A panel of international experts was entrusted with the task of assessing these applications. The following experts were appointed by the Swedish National Agency for Higher Education:

- Professor Alain Fayolle, EMLYON Business School
- Professor Daniel Hjorth, Copenhagen Business School
- Professor Paula Kyrö, Helsinki School of Economics
- Professor Luigi Serio, Fondazione ISTUD Business School, Stresa.

## Recommendation

In response to the Swedish government's challenge to higher education institutions in entrepreneurship and innovation to become world-leaders in their field, the panel of experts would like to recommend to the University Chancellor that the four programmes which have been selected are ranked in the following order:

1. Gothenburg Schools of Entrepreneurship, Chalmers University of Technology and University of Gothenburg
2. Master's Programme in Entrepreneurship, Lund University
3. International Master's Programme in Entrepreneurship and Innovation, Jönköping University, Växjö University and University of Kalmar
4. Master's Programme in Business Innovation and Technology-based Entrepreneurship, Royal Institute of Technology

Appraisals of each of these four selected applications are presented below. First however, the panel would like to comment briefly on the review process itself and on the nature of developing world-class education in entrepreneurship and innovation.

## **The review process**

To deliver a recommendation in the short time available for this government assignment, the process of assessment needed to be streamlined. It was essential to draw up a list of criteria for the assessment before appointing a panel of experts. These criteria were regarded as providing evidence of excellence existing within a higher education institution and were referred to in the Agency's instructions to the applicants. These criteria were originally developed for the Agency's appraisals of centres of excellence.

The panel found this list of criteria useful for the purposes of this review and employed it, with some amendments, as presented in the attachment. (For reference, our amendments are styled in italic.) In accordance with the government's request, importance was attributed to the educational institution's foundation in research. A further criterion was added which emphasised the need for the educational organisation already to have a good network with the home university, the local and regional community, and the business or cultural sector. The panel also considered it significant that, in an outstanding entrepreneurship educational institution, the teaching should itself be entrepreneurial.

The panel stressed that, in order to reach world-class standard, applicants would need to stretch their existing capacity and express high levels of ambition. At the same time, it was appreciated that the demands of putting a development plan into practice would increase as development progressed. Therefore, both the current situation and the development plan (the present vs. the virtual) were used as a framework. Throughout the application and interview process, the reviewers strove to maintain an equal and impartial level of knowledge about each of the applicants by not considering any data from secondary or different sources (for example, personal information, websites or official documents).

During the course of the review process, the panel held meetings to discuss the applications and how best to apply the criteria proposed for the assessment.

The review panel ranked each of the applications according to the criteria listed. Marked differences between most of the criteria then made it possible to reduce the number of applications to a shortlist of the four strongest.

Seven applications were not considered suitable for recommendation. With such a short process, it has not been possible to respond to these applicants with a review. Nevertheless, it is the firm belief of the panel that, for those

who have participated, the process will have served as a means of improving quality in the longer term.

During the review process, a framework for the analysis was developed which we found could explain the level of performance in each of the criterion used in the appraisal. This framework covers:

- strategy and embeddedness
- infrastructure and research anchoring
- curricula and pedagogy
- resources
- outreach
- assessment and improvements.

This framework was used when the remaining applications were reassessed so as to be ranked into order. The four applicants who were selected were called to a hearing. The role of the hearing was mainly to enquire into those areas where the written application provided only partial answers, and to confirm the evidence of quality and promise in the written application. We did not set out to explore omissions in the written application but regarded the hearings as an opportunity for the applicants to lead us into an in-depth understanding.

None of the applicants managed to explore how their proposed development would give a new programme the added value that would position it among the best in the world. This is something that any programme development committee would need to address and elaborate upon further. As a benchmarking exercise, this absence of international outlook may be symptomatic of a publicly-financed higher education system. It remains important none the less that the local effort is perceived within the context of international competition.

Additionally, as a general remark, both the research and education communities as well as the participants of the hearing groups were strongly male-dominated, which might be considered in future requests from the government.

The four units which were selected and ranked into order have succeeded in convincing the review panel that their educational programmes have the potential to reach a very high standard and that additional funding may enable them to attain a world-class position within entrepreneurship education.

Our opinions on the four applications are presented below.



# Gothenburg Schools of Entrepreneurship

## **Chalmers University of Technology and University of Gothenburg**

Chalmers University of Technology and the University of Gothenburg have an approach which combines action-based Master's-level education with R&D, blending education with venture creation. This approach has been practiced for over a decade. The main purpose of the current application is to make an already successful approach more sustainable, for example by developing more faculty to involve in action-based education, strengthening international collaboration with leading international entrepreneurship institutions, and by making an impact on entrepreneurship education in selected, innovative PhD programmes at Chalmers University and the University of Gothenburg.

The four schools of entrepreneurship at Chalmers and the University of Gothenburg are central to the application. These schools are complementary in that they operate at different stages of the entrepreneurial process and are integrated into a innovation system collaboration between the two universities and fully- or partly-owned incubators, science parks, seed-financiers, institutes, etc.

An objective of the proposed development would be to integrate the schools further by co-producing courses as well as by running a joint incubator. The proposal has a strong focus on coordination and integration at all organisational levels. To increase the sustainability of this existing platform, many areas (for example, more formalised governance structures, the adherence to two administrative systems, branding issues, and so on) would require strategic attention as well as joint operation. The steering committee of the project would therefore include representatives from the top management of both universities.

The emphasis of the project is upon strengthening the platform of the four schools by integrating it further into line organisation and using their joint innovation systems to improve outreach to complementary leading universities, alumni and business networks, and to attract new key persons. The project also includes the establishment of an entrepreneurship research school.

Goals for development include:

- at least doubling the number of applicants compared with 2008
- increasing the flow of innovation ideas into the programme to 300 per year
- receiving recognition by 2011 in an international peer review or published survey for delivering international, cutting-edge entrepreneurship education.

The project suggests achieving this by communicating a strong platform, networking activities, enrolling more faculty in entrepreneurship education, collaborations, new PhD courses and consolidation.

## **REVIEW**

### **Strategy and embeddedness**

The proposal seeks to develop an existing alliance and cooperation in entrepreneurship between the two universities, setting up the Gothenburg Schools of Entrepreneurship based on four collaborating schools. The applicants stressed their ambition to build ‘an innovation system’ for Gothenburg, and used this to frame their application. Their aim to develop an organisational ecosystem for training ‘the agents of change’ to renew university structures and pedagogy has realistic prospects of succeeding. The Gothenburg application, more clearly than the others, stressed a knowledge economy framework to their proposal and paired this with a strong emphasis on entrepreneurship as a society-building force. Strategic level decisions have been taken and there is a mix of top-down and bottom-up approaches to establish the entrepreneurship platform. The proposed entrepreneurship school (notice we suggest here that a school rather than schools, as stated in the application, would be the right construct) would support such a platform by consolidating different institutes and units to run the present programmes and to merge all the competencies. As indicated above, the proposal expressed a broader view on entrepreneurship, stressing social entrepreneurship in particular and the idea of entrepreneurship as part of society. Together with the knowledge economy framework, this results in the more visionary outlook we consider to be a necessary part of any ambition towards world-class standard.

### **Infrastructure and research anchoring**

The infrastructures are already in place and function well. There are four programmes with a relatively long history and three major hubs which constitute the core of the platform. Focus on technology-based entrepreneurship is in line with the faculties and the disciplines. The proposal is the most entrepreneurial of the four in that it wants to link high-potential inventions

with research and education. It does this without making entrepreneurship into a service-discipline for technology-based innovation, something which often characterises an engineering-based understanding of entrepreneurship.

The interdisciplinary educational setting and the alliance between the universities is attractive. The commitment to develop this school from four entrepreneurship programmes seems realistic but still it is an initiative which would involve some risk due to the fact that it has been, and still is, more anchored in development than research. The coordinating team for developing this endeavour, with members from both universities at both strategic and operational levels, have already succeeded in overcoming many of the problems which are typical of this kind of multidisciplinary and cross-institutional project. They have succeeded in developing an innovative educational concept and in attracting the financial resources necessary to develop and conduct the programme. On the one hand, the team has had the vision to extend entrepreneurial behaviour to other disciplines and, on the other, the authority to influence it in practice. We are concerned, however, that the requirement for a robust basis in research is not currently met. Therefore it is important to stress that the strategy for attaining a world-class standard in this situation would need to centre on the building up of an entrepreneurship research community. A full professorship in entrepreneurship would be a natural starting-point for this long-term work.

### Outreach

Chalmers is business start-up oriented and is well-known for its pragmatic and hands-on approach to entrepreneurship. There is a great and long tradition of engineering in the city and in the surrounding heavy industry. Gothenburg University has a long tradition of entrepreneurship and small business education (together with Växjö University). Although this has not been fully kept alive, there are resources to explore in the local culture which thrives on entrepreneurship as an educational field. The programmes are strongly embedded in practice and in the local and regional communities but lack an international orientation and an entrepreneurship research community to support the academic quality, development of the curriculum and the pedagogy. The plan to develop doctoral programmes and research would be key elements in the success of this initiative and, as pointed out above, dependent on the presence of a full-time professorship in entrepreneurship.

Business and alumni networks are supposed to be mobilised and expanded especially across other communities and organisations in surrounding society to reach the goal of bringing entrepreneurship to a society building

force, which we find to be a natural way to operationalise the view on entrepreneurship as a societal resource and not simply a business resource.

### **Resources**

The aim is to establish an interdisciplinary entrepreneurship platform. The weakest spot would actually seem to be research and having specialised faculty members in entrepreneurship. There are only a few dedicated resources in entrepreneurship at the academic level; two positions specialise in entrepreneurship but there are none at the business school. The clear intention to involve more faculty is important and strategically necessary. The plan to increase research-based teachers and a PhD programme would also support the availability of competent teachers in the future. One of the main challenges is to recruit academics in entrepreneurship and to integrate research into the project. Merging action-orientated and research-orientated people within entrepreneurship to create a coherent team is probably one of the most important things to do next in order to be successful. To reach world-class performance, we would recommend that the already successful, development-oriented advanced level education is complemented and supported by an entrepreneurship research infrastructure and international orientation so as to achieve improved interplay between education, research and practice.

### **Curricula and pedagogy**

There are several levels of learning included in this application: students' learning as part of their programmes, and faculty's learning as part of the schools' initiatives. This complexity is good for the development possibilities of the schools. The application strongly emphasised a hands-on approach by focusing on the business project, and expressed this as the kind of realism in entrepreneurship to which we have given priority.

Of the courses included in the application, about 50 per cent are focused on entrepreneurship. This probably reflects the fact that there are too few in the faculty with this specialisation. Entrepreneurship education perspectives would have to be reconsidered and some new courses developed. Gothenburg University has a rich pedagogical milieu to utilise in the local education of lecturers, and we encourage them to include this resource in the work of developing their curriculum and making entrepreneurship education more entrepreneurial. Their action-based approach and success in stimulating student ventures indicate a long-term dedication to curriculum development and the pedagogy which fosters student-oriented entrepreneurial learning are strengths of this application.

### Assessment and improvements

In support of the high grading of this application, there is:

- a clear and realistic development plan
- an institutional commitment and an entrepreneurial attitude held by the coordinating team
- an overall multidisciplinary and cross-institutional setting
- an interdisciplinary entrepreneurial platform and pedagogy
- a plan to improve sustainable interplay between research, teacher training, curriculum and pedagogy
- the promise to expand its impact upon other disciplines.

Together, all these factors offer potential for the programme to achieve world-class results. The resources and time required to develop an active, international-level research community and PhD programme in entrepreneurship do however, pose a challenge.

The application expresses a vision for the future and an ambition that goes three steps beyond the typical. To establish an internationally-competitive Master's in entrepreneurship, Chalmers and the University of Gothenburg would concentrate on 'spreading more knowledge', 'developing an entrepreneurial faculty', and having 'more doctoral students who utilise research'. The interdisciplinary platform and diverse relationships with the business community and society seem very attractive and would nurture an entrepreneurship education. To strengthen these activities and these stakeholders in an international orientation would increase the power of their outreach in the future. The challenge will be to think beyond the industrial economy and to develop a programme which also addresses the post-industrial economy.

Considering the difficulties and demands of this kind of multidisciplinary effort, where perhaps most difficult problems have already been successfully overcome, this alliance of universities deserves to be graded as the most attractive of the applications. In the international landscape of entrepreneurship education, successful examples of this kind of multidisciplinary alliance are still very rare. As an example of the Scandinavian approach to developing entrepreneurial learning and practice, it might reach a unique position within international competition. By this we are referring to the perspective on entrepreneurship as belonging to society rather than simply to business and the corresponding interdisciplinary approach to entrepreneurship education.

This is an ambitious, relevant and convincing project and the application is ranked first among the applicants interviewed.



# Master's Programme in Entrepreneurship

## Lund University

Lund University has a long tradition of research in innovation and entrepreneurship which was mostly centred at Växjö University (where the professorship in entrepreneurship was based) but today it invests extensively in the area. In 2004, Lund University established a Center for Innovation, Research and Competence in the Learning Economy (CIRCLE). In the same year, management also initiated a project intended to enhance teaching and learning in the field of entrepreneurship at the School of Economics and Management. A Master's Programme in Entrepreneurship was launched in 2007. Future potential improvements to this programme constitute the core of this application.

The present Master's Programme in Entrepreneurship is a one-year Master's programme with the objective of developing the students' entrepreneurial competencies and abilities. During the year, students pursue either a business idea of their own, or an idea stemming from university research or company R&D.

The education in entrepreneurship is mainly coordinated by the School of Economics and Management, and administrated by the Entrepreneurship Division of the Department of Business Administration. The courses and programmes in entrepreneurship offered cover all levels in the educational system. The majority of the courses are directed towards students in specific fields of studies. Lund University offers two other Master's programmes related to innovation and entrepreneurship. These programmes differ from the Master's Programme in Entrepreneurship in that they focus more on society and the surrounding innovation system.

Research within the field of entrepreneurship and innovation has been centred at the Institute of Economic Research at the School, and at CIRCLE.

In order for the Lund University Master's Programme in Entrepreneurship to attain a world-class standard in entrepreneurship, the applicants intend to develop and improve the programme by:

- developing its focus on sustainable entrepreneurship

- enhancing and strengthening its international profile and, in the process, developing its leading international partner university portfolio in Sweden
- strengthening the collaboration between entrepreneurial activities within and outside the university (for example, by creating a centre)
- enhancing the programme curriculum (that is, its structure and pedagogy)
- increasing collaboration with leading researchers at Lund University.

## **REVIEW**

### **Strategy and embeddedness**

Management at the university is committed to investing in innovation and entrepreneurship, indicating that a strategic perspective is already in place. The present programme was initiated and supported by central administration at the university. In the strategic plan, the emphasis on innovation and entrepreneurship is clearly stated. The School of Economics and Management has also made a strategic decision to use entrepreneurship as a means to change the focus in the curricula of other disciplines at the school. The objective is to embed new business-creation competences in all programmes. It is a way of seeding entrepreneurial values more widely and of strongly accenting key competencies in relation to teamwork and leadership. However, to reach more extended embeddedness, the challenge would also be to attract other faculties in the university.

### **Infrastructure and research anchoring**

The programme already exists – it was launched only last year – but it is already well-established within the university organisation and well-connected to the relevant external environment. This speaks for the possibility of the proposal's success. It is also well-connected to the surrounding research activities in the fields of entrepreneurship and innovation but it would benefit from a more formal community of entrepreneurship researchers who could provide a genuine foundation for research–education dialogue based on the experiences of the Master's programme.

### **Curricula and pedagogy**

The Master's Programme in Entrepreneurship is designed for students intending to pursue an entrepreneurial career and its structure and pedagogical choices fit very well with this goal.

The programme is well-documented and the undergraduate study support continues at Master's level. The curriculum for the one-year Master's programme focuses on the process of recognising and exploiting business opportunities with growth potential. The programme is based on one year of full-time studies, and consists of four courses on:

- the entrepreneurial process and opportunity recognition
- resource acquisition and market exploitation
- managing new venture growth
- and industry analysis.

An entrepreneurial project completes the programme. The programme and course description demonstrate many aspects of entrepreneurial pedagogy, consistent with the strategy of the school and the aim of the programme. The interplay between action, reflection, theory and experience gives good guidance for pedagogy and the mentoring programme supports a reflective approach.

There is a more standard business-school relation of self-reflection and the development of gradual understanding of theoretical knowledge in decision making and hands-on readiness that steer the project towards a more managerial profile. The emphasis on exhibition, and on the ability to communicate one's project to the public is useful for accentuating entrepreneurship as a social process. Additionally, the mentoring aspect in training judgement and academic reflexivity seems valuable. Including the innovation incubator in the entrepreneurial environment seems to open the programme to a context of entrepreneurial events. The research embeddedness is good on the institutional side but it does not seem to be reflected in the reading materials on the courses. The mandatory literature on the one-year programme consists of a american textbook. As indicated before, there seems to be a need to focus particularly on the research–education relationship, going beyond the fact that certain people are engaged in both contexts, so that a genuine research-basis for the programme can emerge. This would also provide for the possibility of teaching materials being developed locally.

The plan to develop the pedagogy further by creating more spaces for students would help to generate a collaborative pedagogy. However, the role of Lund University Innovation, and Ideon Innovation could be clearer: we would encourage the applicants to increase the students' exposure to these environments as part of their learning processes. The plan to improve virtual facilities is welcomed but it is very preliminary and could be more innovative. Some aspects in the chosen pedagogy could provide a starting point for developing a unique profile in the international competition.

### Resources

The advisory board has a good balance between academics, practitioners and people from the business environment. The programme director has strong references in the field. The critical mass in research is perhaps to be found primarily in innovation. There is however, a smaller community focused on

entrepreneurship and this would clearly need to be strengthened if the long-term research basis of the programme were to be secured. At present, rather few positions are focused on entrepreneurship. We would therefore have to conclude that in its current form, the whole programme leans heavily on the expertise of a few people. Management shares this concern and is seeking to expand the entrepreneurship team. The School of Economics and Management has taken a strategic decision to engage all researchers in teaching activities in order to improve the fluent interplay between research and teaching. This is a good tool for disseminating the research-based entrepreneurial teaching competences among teachers as well as providing a pool of resources for the programme in the future. However, to guarantee that entrepreneurship-specific research resources are available for the programme, it would be necessary to integrate CIRCLE-based entrepreneurship and innovation research.

### **Outreach**

Lund is located in Øresund – a highly dynamic region. There are strong connections with the business and professional environment in the area. Business Angels, venture capitalists, banks and investments are linked and the attractiveness of the Master's programme is probably strongly based on university and regional networks. The infrastructure for business generation is a strong point of the application and the interaction between the course and the surrounding infrastructure would also seem to be effective.

The embeddedness of the programme is good: in industry, in mentorship, in incubator and in university outreach units. These relationships constitute a good and relevant basis for a strong support for entrepreneurship courses. That so many graduates start businesses indicates that they have acquired a good network. Regional outreach is a strong point in this application and the location also seems to offer a vital environment for the future development of the programme.

### **Assessment and improvements**

The learning outcomes are clearly laid out and well-argued but quality assessment needs to be developed. There is an external evaluation at Lund for all the programmes.

There is however, nothing which indicates a programme-specific effort to enquire into quality and needs for development. It seems inadequate to rely on standard operating procedures when the programme strives to be different.

The outcome-oriented quality assessment suits the action-oriented pedagogy and is thematically consistent with the exploitation focus of the pedagogy. However, it could be supplemented by a process-oriented assessment.

The follow-up of students who have graduated indicates a great success in terms of the learning process. One good result is the number of students who have begun to run their own businesses immediately upon completing the programme. The great variety of disciplines among students is impressive and is also a great asset to the programme should it be incorporated as a resource to capitalise on. So we would encourage the applicants to take advantage of the interdisciplinary potential based in the heterogeneity of the students enrolled, and to enquire into the implications this has for how the outcomes and processes should be properly assessed. This would provide very valuable information for the future development of the programme. It is necessary to know not only whether the results are good or bad but also why they are so.

The plan for improvement is well-described, feasible and reflects the strategic commitment to upgrade the current Master's programme to world-class standard. To achieve this however, we would recommend extending the Master's programme to two years. The plan of improvements includes a greater focus in the curriculum on sustainability and the international context and a centre for entrepreneurship development. Sustainable development has previously been rare or absent in entrepreneurship programmes. To the review panel, particularly considering the relatively limited number of faculty, the time-perspective of the plan seems much too optimistic. The low ambition for increased enrolment is somewhat disappointing and would reduce the prospective impact of the programme. Neither the intention and aspiration to achieve world-class performance in entrepreneurship education nor the added value of the specific profile at Lund University within an international landscape were well-described. If the challenge is to create a unique profile that can compete in the international arena, then it's not enough to model the programme on an American education. Rather, there needs to be consistency between the applicant's strong emphasis on the local-regional uniqueness and the way the programme is designed. Within an international perspective, there is much more to build on in the Øresund and Scandinavian resources.

This application was ranked second among the applicants interviewed.



# International Master's Programme in Entrepreneurship and Innovation

## **Jönköping University, Växjö University, University of Kalmar**

The proposed partnership between these three universities would have as its objective the provision of an advanced education which would recognise the rural–local as well as the urban–global dimension of entrepreneurship and innovation. To upgrade the Innovation and Business Creation Programmes (IBC) at Jönköping University to the standard associated with qualified advanced-level programmes, the applicants conclude that considerable academic and further resources would need to be mobilised during the reform period and beyond.

To achieve this, Jönköping University, Växjö University and the University of Kalmar would join forces in a partnership which would create a setting for an advanced academic education in entrepreneurship and innovation. The aim of the upgraded programme would continue to be the examination of Master's students with the capacity to initiate, organise and enact innovative and creative processes within existing and emerging organisations in the private, public and voluntary sectors. The ambition for the overall teaching context of the three collaborating regional universities is to combine their academic quality and enable students to experience different academic settings which have close relationships with practising businesses and other stakeholder communities.

The proposal focuses on the refinement and further development of the IBC two-year Master's programme at Jönköping International Business School (JIBS). At present, Växjö University offers one-semester programmes at the advanced level and has just launched a two-year Master's programme. The Baltic Business School (BBS) at the University of Kalmar offer two one-year programmes at the advanced level. The present compulsory courses will be revised and replaced if necessary, depending upon the special competencies at Växjö and Kalmar Universities. An interdisciplinary menu of optional courses would be offered so that individually-tailored programmes for students would be a general feature. Courses would be taught on whichever university site had teaching staff available and where the organisations involved were located. An International Advisory Board would be established.

The teaching philosophy includes experimentation, practising different interactive methods in carrying out project assignments and thesis work. To enforce the students' commitment to an entrepreneurial career, teams of students will (as part of their training) offer support to nascent and new firms in the regional setting in their business-creation process.

The students will be encouraged to participate in partner organisations' international projects and to combine necessary investigations on site with participation in courses at international universities.

Other elements that the proposal intends to develop or use in the programme include:

- recruiting students with different backgrounds
- encouraging creative, self-organising and social learning
- offering a personal mentoring team and individual education contracts
- broad networking and alliance-building to facilitate emerging personal networks
- organising joint seminars and workshops on all three university sites
- arranging seminars regularly for students and practitioners
- introducing new examination forms including, for example, innovation forums and own venturing, alumni programmes
- inviting students to form partnerships with business firms and organisations (using established networks which have been expanded to include both local and global firms)
- establishing a new arena for bringing researchers and practitioners together
- inviting students to participate in internationally-connected research programmes.

The applicant states that, considering the time needed to recruit students, a start-up in the autumn of 2010 would be appropriate, especially if all the opportunities outlined in this application were to be fully exploited. More time would be needed to construct the proper context for an internationally-competitive programme of excellence and to offer a one-year optional programme as well as course modules for practitioners.

## **REVIEW**

### **Strategy and embeddedness**

JIBS is focused on entrepreneurship, providing a natural anchoring for the proposed programme. There is a strong emphasis in this application on a research basis and also on Babson College as a model from which to learn. The key strategic element of the application however, is the partnership between Jönköping University, Växjö University and the University of Kal-

mar. The objective of this alliance would be to utilise their regional proximity and to increase the critical mass at JIBS in the international competition and, in particular, its current alliance with Babson College. To the review panel however, it seems as though Jönköping does not really need this collaboration and perhaps not the resources either, to reach the latter ambition. There is no clear benefit from the collaborative construct in the way the educational programme is designed, and the sought-after synergy is hard to identify. The strong research emphasis is not convincingly described as working within a learning-enhanced educational programme, and neither does the collaborative potential of the three universities seem to result in benefits for the students' learning process. Mere geographical proximity offers no immediate advantage where there are no genuine collaborative benefits from the perspective of the particular programme. The alliance appears to be artificial and focused on a short-term aim (the application to the Swedish government). There is no evidence of practices based on long-term relationships and perspectives. This perception was also confirmed during the interview.

#### **Infrastructure and research anchoring**

JIBS have active partnerships with top academic institutions in the field of entrepreneurship, an international educational setting, a world-class entrepreneurship library, and a regional setting that provides a rich educational environment for the development of an International Master's Programme in Entrepreneurship and Innovation. However, the application failed to show how this would be exploited to the benefit of the programme nor how the infrastructure of the whole alliance could be organised as a shared community which would be advantageous for the student. The application also failed to present cases on how entrepreneurship education could be embedded in the remaining university infrastructure. Jönköping University certainly has resources in pedagogy research and in engineering that would enrich the students' learning environment.

#### **Curricula and pedagogy**

The curriculum of the actual upgraded programme was not yet available. There is a broad range of courses for students to choose from at JIBS, including an interesting range of entrepreneurship courses which offer a mix of methods and approaches. The International Master's Programme in Entrepreneurship and Innovation has a relevant design with a good balance between the two key notions. There is a general consistency between learning objectives, teaching and examining. However, there is no convincing description of how the upgrade makes the collaboration necessary. Why could this not be done by Jönköping alone? The key element in the application, the cross-universities programme, is pushed into the background both

by the focus on research (which we acknowledge is important) and by Jönköping's contribution to the upgrade of the existing programme.

That the learning community should consist of Master's and PhD students, entrepreneurs and teachers/researchers is an exciting idea and consistent with the chosen pedagogy based on the combination of education, research, community dialogue and internationalisation. The idea of forming smaller, tailor-made groups of students is also interesting. This application includes several innovative means of fostering students' learning . It also includes ways in which students may be empowered to participate in the planning and conducting of learning interventions and processes, for example mentoring and individual education contracts. However, the actual pedagogy was not theoretically argued for. The whole plan proved to be in a very preliminary phase. Many of the requirements, the organisational constructs, the concrete descriptions of how several of the suggested requirements of the upgrade would be met were missing from the application. Consequently, we cannot see how there is a link between research, curricula, pedagogy, and the learning process. The role, ambition and contribution of the partners other than JIBS are unclear and so, from our perspective, we cannot see how Växjö, Kalmar, and Jönköping together contribute to enhancing the students' learning.

### **Resources**

There is an international profile at JIBS which is clearly present on the educational level. Research activities are well developed but their relevance to the need of entrepreneurship education programmes is not clear. Jönköping comprises the majority of the research basis in the application. The list of senior faculty members is impressive but few of them are actually focused on entrepreneurship and/or innovation and the list includes entrepreneurship researchers and professors who are not really, or not fully, involved in the programme. Few other teachers really have an entrepreneurial expertise. Since the alliance is central to the application, the question of how the human resources will be merged and shared within the community remains, as well as how the collaboration will work. The application thus indicates that research is a strong resource at Jönköping when it comes to entrepreneurship (although the faculty available are fewer than the application would imply), but not how this resource could lead to an excellent entrepreneurship education. The application does not explain how entrepreneurship research is a strong resource at Växjö or Kalmar Universities.

### **Outreach**

International academic networks are important but the embeddedness of the business and alumni networks is not at all well described, although the panel

are aware that there is an effective working collaboration with the surrounding business community. Småland Entrepreneurship Academy is mentioned as a plan yet to be established. How to enhance the new alliance and harness this entity to serve the shared programme, would need to be further developed.

#### **Assessment and improvements**

JIBS dominates this alliance and the strengths of the application rely heavily on its contribution and its ambition for international status. We cannot see how the collaboration with Växjö and Kalmar would help Jönköping to make a programme more competitive internationally. Since this strategic partnership is central to the application, it would be natural to expect that the shared contribution would be outlined more explicitly. A lot of work will be necessary in practice to organise and run this alliance as a shared infrastructure.

The reasons given for this strategic alliance are regional proximity and critical mass, that a developed programme would need resources for growth. These reasons are not convincing since the three universities lack complementarities and there is a low level of experience in cooperation between the three universities. To reach world-class standard, it would seem that international alliances would be more useful and efficient.

The panel is also concerned that the ambition to upgrade programmes is insufficient of itself to qualify for a world-leading position in entrepreneurship education. The programme development seems to be in a very preliminary phase and the curriculum for the upgraded programme was not yet available. According to the programme directors, its core consists of diverse small experiments (although lacking a reflected pedagogy for learning entrepreneurship that would substantiate this experimental approach), among which the most successful will be chosen for the final programme. The experimental strategy of the programme might become successful, but how these experiments would be measured and the dynamics leading to success understood had not yet been worked out. Too many of the initiatives and resources necessary to support the upgrading of the new programme were still to follow and how they could be put into practice in more concrete terms remained absent from the application.

This application is ranked third among the applicants interviewed.



# Business Innovation and Technology-based Entrepreneurship

## **Royal Institute of Technology, Stockholm**

The Royal Institute of Technology (KTH) intends to improve on and expand existing one-year Master's programmes into a two-year Master's in innovation and entrepreneurship.

Innovation and entrepreneurship are subjects gaining increasing attention within the engineering curricula. At present, KTH teaches more than 90 courses within graduate and undergraduate programmes related to these subjects. At KTH there are three Master's level programmes within or related to the field. Within the schools running the programmes, there are primarily five major entities carrying out research addressing innovation and entrepreneurship. The major part of the entrepreneurship education of all the universities in Stockholm is conducted through a collaborative effort: the Stockholm School of Entrepreneurship (SSES).

The proposal details the development of a two-year Master's Programme in Business Innovation and Technology-based Entrepreneurship (BITE). The purpose of BITE is to provide the students with focused, relevant and useful skills and knowledge mainly about initiating and managing innovation within existing business structures and, to a lesser extent, through starting new economic endeavors. Stockholm School of Economics (SSE) will be engaged in the programme through the inclusion of its four main courses.

The proposed programme (BITE) will be administrated by the School of Industrial Engineering and Management (ITM) and led by a steering committee including members from the four most relevant schools. The programme organisation comprises the faculty, the programme staff (Programme Director, Programme Administrator, and Business Liaison Officer), the Steering Committee, an academic International Advisory Board and an Industrial Advisory Board of practitioners. The Programme Director holds the main responsibility for executing the programme and ensuring that the learning objectives are met. BITE will make use of the international advisors, and other international academics as teachers in the programme. The Industrial Advisory Board, is there to ensure the industrial relevance of the programme and to strengthen the interactions between industry and the programme's teaching staff and students. An industry guest faculty will be

recruited from: companies within the KTH innovation systems, lecturers in executive education programmes, and other relevant industries.

BITE will be based on the experiences of the four current KTH programmes. Its basic structure draws on the SSES core curriculum and the Entrepreneurship and Innovation Management Programme. Insights in innovation policy, economic transitions and industrial dynamics are gained from the Economics of Innovation and Growth Programme and two of the specialisation tracks will be built on insights from the ICT Entrepreneurship and Product Development Programmes.

The proposed programme will benefit from both the current programmes at KTH and the expertise at SSES. BITE will combine SSES's core courses on practical entrepreneurial skills and practical experiences from 'innovation live'. Faculty from KTH will constitute the core teaching staff of the programme as they are covering a broad span of relevant academic disciplines, industrial contexts and technical application areas. BITE will include not only advanced-level academic courses on entrepreneurial business and innovation management but also include industry-based courses, projects and internships embedded within the specific technological and business conditions of selected technical areas (ICT, life sciences, service operations, etc.).

BITE will focus on what the students need in addition to their existing technical knowledge in order to become successful in entrepreneurship and innovation. These needs are identified as many skill-level competences (for example, sales, product development, human resource management) as well as experience-based competences. There is also a need for general management and business knowledge. Additionally, insights into business development, ventures processes, the dynamics of innovation, and the requirements of different industries for successful innovation and entrepreneurship will put these hands-on competences into context.

The programme is built with three blocks to accommodate these needs. The objective of the first block is to ensure that all participants quickly reach a common understanding of the basics in business and management theory. In the second block, the students learn about and establish entrepreneurial skills. This block constitutes the core course at SSES. The third block is designed to prepare the students to engage in innovative and entrepreneurial efforts by giving them experience and training in industry conditions and business logic in selected technical areas.

The proposal states that the learning methods must have a deep impact on the participants, stimulating the development of an entrepreneurial mindset and competencies. This is said to have influenced both the programme de-

sign and the teaching approach used in all the courses. The programme is designed so that there is a progression from conceptual courses, which serve as intellectual preparation, through to skills-oriented courses and then finally to concentrating upon and applying what has been learned. The teaching is intended to be case-based, so that theory is taught through practical business examples and problems.

Performance will be measured not only by exam results and course evaluations, but also by a systematic follow-up on the careers and opinions of alumni.

Initially, the new programme will enroll 30 students annually from engineering or natural science backgrounds.

The main development activities include:

- detailed design of the programme curriculum
- specific design of the courses
- development of business, innovation, and entrepreneurial cases
- recruitment of an Industrial Advisory Board
- recruitment of affiliated companies and entrepreneurs
- the training of faculty in the intended pedagogical approach
- a marketing plan (which is yet to be developed and executed).

## **REVIEW**

### **Strategy and embeddedness**

Technology-based entrepreneurship is in line with the core mission of the university. Entrepreneurship is mentioned in the strategic plan for KTH but there is a lack of entrepreneurship policies and goals at the schools. KTH's strong focus on technology leaves room for questions about the position of entrepreneurship as a strategic issue and the role of entrepreneurship research in education. The proposal failed to communicate a strong central commitment to entrepreneurship at KTH. Consequently, we cannot see that there is a strategic component in an emerging entrepreneurship-supportive context at KTH.

The proposed programme is strongly technology-focused and entrepreneurship is approached as a service discipline to technology start-ups. At the strategic level, the proposal is intended to enhance business competences. The focus is more on technology-based business development and innovation, exploiting the innovations of the KTH research groups, and less on entrepreneurship. Accordingly, the BITE programmes are intended to influence a general change in pedagogy towards innovative business develop-

ment. Thus, at the strategic level, curriculum and pedagogy interplay focuses more on innovation than on entrepreneurship education.

#### **Infrastructure and research anchoring**

The collaboration in and with the SSES indicates that KTH has concrete experience of organising entrepreneurship courses, but SSES provides little basis for a research infrastructure. In addition, a number of people with research interests in entrepreneurship have recently left KTH. There is an acute need to build up a strong research base in entrepreneurship. Management states that one of their challenges is to recreate a strong research community and research focus on entrepreneurship. There is a recruitment strategy to increase competence in entrepreneurship but there is neither a robust action plan nor concrete objectives.

#### **Curricula and pedagogy**

By integrating SESS course supply to the Master's programmes, KTH plans to launch a new two-year Master's programme – BITE. This structure is clear. The problem is that, in practice, the interplay between the various components in the learning environment is not described from the students' perspective and therefore does not convincingly communicate the benefits for them in this set-up.

The four entrepreneurship-focused courses included in this application are really a start-up hands-on programme. This would position entrepreneurship as a service discipline to technology start-ups and as preparation for becoming owner-manager. This is in sharp contrast to the declared higher ambition of the programme which is related to entrepreneurship in existing companies. The emphasis on education for leading roles in innovation, developing business in existing and new companies, managing future companies, and commercialising technology is not well-matched by the courses included in the application. Even if there is an analysis of success factors that would point KTH in the direction of a broader understanding of entrepreneurship and the need to cover the entire process, the programme itself does not support the learning of this process.

The broader concept of entrepreneurship is an ambition which is not yet apparent in the pedagogy and the focus on case-based teaching is not described as being backed-up by a case-based pedagogy. The pedagogy itself is conventional rather than innovative. Instead of identifying its leading concepts and processes, the plan focuses on those individual tools which are expected to generate excellent outcomes. It is not clear how 'innovation live' will affect the programme nor how the industry projects, study visits, guest lecturers and internships will have a role within the pedagogy that supports

entrepreneurship learning. Indeed, the ‘innovation live’ concept remains rather opaque.

Case-based teaching was regarded as one of the main tools which would support entrepreneurial learning. The application failed to describe convincingly how such an approach would relate to an entrepreneurial pedagogy that, for example, underlines student-oriented holistic action and opportunity-focused processes of creating, recognising, exploring and exploiting opportunities for new business ventures. So far, the cases come from textbooks so this project would have the challenge of developing its own cases, contextualised and embedded in the technologies, activities and environment of KTH. The establishment of local cases was going to start sometime in the future and open-ended teaching styles were already underway. Progress in these areas requires local entrepreneurship research and a well-designed interface between research and teaching. This is not described as being part of the set-up in the educational environment.

### Resources

The review panel found a lack of internal resources with only two faculty members specialising in entrepreneurship and a great need to broaden this basis. Internal resources for innovation are strong in KTH but the lack of entrepreneurship-specific human resources is a weakness of the application. Additionally, there were no plans to compensate for this lack by, for example, strengthening the collaboration with the Stockholm School of Economics (SSE), one of the partners in SSES, or to build a broader research-focused faculty in entrepreneurship.

Integrating entrepreneurship-specific research into the strong technological base and infrastructure is the key element in the application, but the infrastructures to support entrepreneurship development through research, as teaching staff, are weak. The International Advisory Board, although proficient for the purpose of advising on entrepreneurship education, does not actually confer a focus on entrepreneurship research. At present, there are insufficient human resources to undertake the entrepreneurship education challenge and lead the institute to a world-class position.

The KTH innovation system is a very practice-oriented system which advises and supports academic entrepreneurship. About 20 new companies are supported each year. These are excellent results but still very far from the outputs obtained by the best universities in the world.

### Outreach

Different elements of the outreach to the business community and international players in this field were clearly described and also represented excellent resource-potential to support entrepreneurial projects and processes. The applicant takes it for granted however, that the geographical location is more than a potential strength. There needs to be a clear policy and strategy on how to exploit the dense entrepreneurial context in the surrounding area. The development plan of the proposal comes across as rather internally-oriented. This corresponds to a failure to approach the challenge from the perspective of the programme rather than the institution (KTH). The latter is an admittedly rich context but, at the level of the programme, there are several reasons for going beyond this context so as to secure an excellent learning environment for the students. This is an area which hosts the major part of the research-based start-ups in Sweden, a fact that does not seem to affect the programme to any considerable extent.

#### **Assessment and improvements**

There is an analysis of success factors in the application and the suggested solutions to the challenges indicate a strategic understanding of the development work ahead. The ambition for the programme development however, still seems rather vague. What is already in place seems to take up the majority of the plan. A plan that specifies how the solutions suggested by the applicant will be put in place is lacking.

A technical orientation rather than an entrepreneurial one dominates this application. The strength of the application would be the ambition to change pedagogy to enhance business development competencies. The crucial weakness is the lack of an entrepreneurship-specific research community. Another weakness is the tendency to imitate conventional pedagogic concepts and approaches, rather than to adopt an entrepreneurial pedagogy. To overcome these problems, KTH would need to strengthen entrepreneurship research and expand their current horizon towards more entrepreneurial learning. The multidisciplinary opportunities offered by business school collaborations might be worth considering.

The review panel found strong and credible focus on technology-based business development and innovation. Additionally, there is great potential in the immediate context of a Master's programme but, as yet, little of this is explored to the benefit of the students' learning environment. The crucial point for grading this innovation-oriented application is the position that entrepreneurship holds. All the criteria assessed indicate that entrepreneurship actually has a quite weak position in this plan.

This application is ranked fourth among the applicants interviewed.

# Attachment

## Assessment criteria

*The following factors are considered evidence that an educational unit has excellent standards and has established a solid foundation. For reference, our amendments are styled in italic.*

- There is an educational setting, organisational structure, and a quality assurance system and infrastructure that functions exceptionally well.
- The organisation has a competent management and committed teachers with relevant knowledge, experience and ability. *The educational unit is based within a collective and is therefore resilient to staff changes.*
- The organisation has a sound academic or artistic foundation and is based on best practice. *There is, in addition, a good foundation in research.*
- *The educational unit already has a good network with the home university, the local and regional society, and the business or cultural sector.*
- The forms of teaching and examination are designed in accordance with learning objectives and expected outcomes. *The educational unit is entrepreneurial in itself.*
- The fostering of student learning is outstanding.
- Students achieve excellent results.
- An outstanding teaching and learning unit describes and analyses factors of educational success and the reasons these lead to exceptional results.