

Extract from

**INNOVATIVE UNIVERSITIES IN EUROPE**

# **Report on DIFUSE Consortium Members' Knowledge Transfer Practice**

**CASE STUDIES FROM THE *EUROPEAN CONSORTIUM OF INNOVATIVE UNIVERSITIES***

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**“Aalborg University Denmark”**

## **INTRODUCTION**

*Global Trends in Higher Education*

Traditionally, the primary functions of universities have been teaching and research. The majority of European universities are public whose main source of funding is directly or indirectly from the state. However, over the past decade, a *third* stream of activity has emerged, namely, the transfer of knowledge to the private and community sector and the active engagement of universities in regional economic development. So-called *Third Mission* activity includes *continuing Professional Development* (CPD), *licensing, consultancy, and start-up and spin-out* activity and recognises the need for universities to protect and commercialise university inventions and their other assets. A closer relationship with the business and community sectors is a prerequisite to this development.

At the forefront of Third Mission Knowledge Transfer (KT) activity in European universities are the members of the *European Consortium of Innovative Universities* (ECIU). In recent decades, trends such as globalization, the development of common trading zones, intensification of international competitiveness, increasingly require organizations to be innovative in the way they operate and in the products and services they produce. Indeed, many government policies have encouraged greater collaboration between the three Works which were once very separate: namely, *private and public research, business* (as a structure for wealth creation) and *education*. All three, it is felt by policy-makers, can converge into a virtuous circle to produce successful innovation. The membership of ECIU provides a critical mass to highlight different schemes for innovation in European universities and measure their effectiveness. In doing so the *DIFUSE* project acts as catalyst and will provide role models for other universities in Europe and beyond.

This common model for innovation in universities with a third mission is a spiral that aims to capture multiple reciprocal relationships across institutional settings (public, private and academic) at different stages of the innovation process to form the so-called "Triple Helix."

According to this model, higher education institutions (HEIs) become the "hybrid agents of innovation", with the university hi-tech spin-offs, with venture capital funds set up by universities. *Innovative* universities today are vortexes which can combine use of knowledge with industrial, business and regional growth and provide a habitat for the dynamic interaction between educational, R&D, business and government sectors. Universities are increasingly starting to play the role of "innovation coordinators" and often becoming responsible for coordination and management of the various phases of innovation activity in their regions.

One of the many drivers for this is in the changing nature of university funding. The researched university sector is facing new challenges that require new and innovative systems for sustaining and developing new and innovative technology-transfer activities in support of the modern competitive economy. "Traditional" financing mechanisms – when a public institution is funded from state sources alone – are becoming less evident and more and more lifting in their effect on reform in Higher Education as state funding becomes more and more allocated on a market-led basis. Governments have caught on to the power that universities have through their ideas and presence in the local economy. Many are not only significant local employers, but they have become joint venture partners in regeneration projects involving the setting up of high-tech science and business parks which are perceived to be the mainspring of new high-growth economic activity to replace old, worn-out and traditional forms.

### ***The Innovative University***

In many cases the *Innovative University* route started with the development of a Science Park over 40 years ago. But the distinctive step change came for many innovative universities with the interconnectivity of their support for business (or business services, including Science Parks) with the development of their own commercialized products, which were usually research and technology-led outputs from Science, Engineering and Technology Faculties. Until the development of a dedicated infrastructure (e.g. the Technology, or Knowledge, Transfer Office, responsible for patenting and licensing IPR; and the Research Support Office, responsible for procuring and/or managing the research funding) many universities operated in ignorance of the opportunities they were missing for transferring their inventions and, in some cases, simply their ideas to society and to their Region. What distinguishes *innovative universities* from the mainstream is, however, the holistic approach to Knowledge Exchange and Transfer, as in the diagram below, in many cases the *Innovative University* route started with the development of a Science Park over 40 years. But the distinctive step change came for many innovative universities with the interconnectivity of their support for business (or business services, including Science Parks) with the development of their own commercialized products, which were usually research and technology-led outputs from Science, Engineering and Technology Faculties.

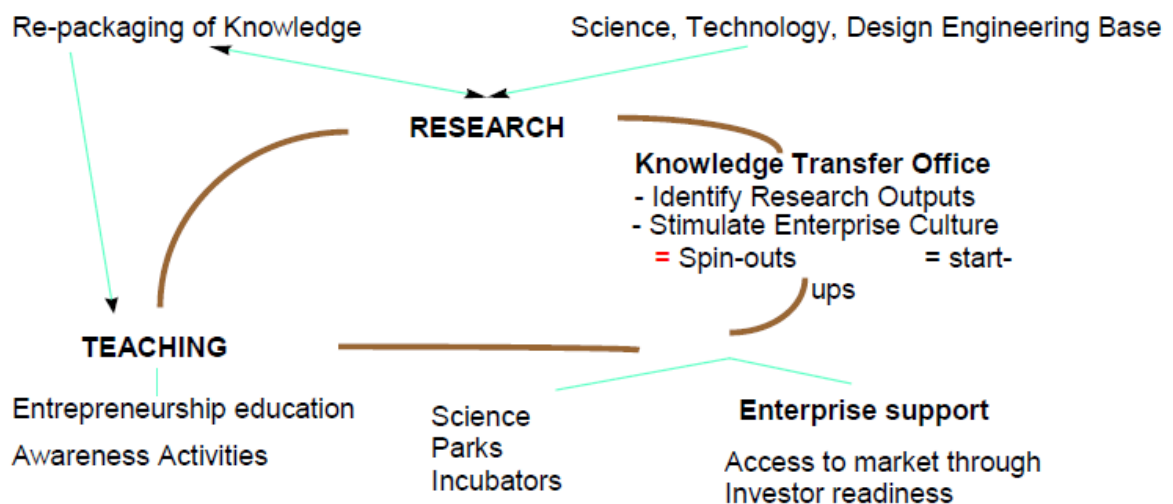
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Research Support Office, responsible for procuring and/or managing the research funding) many universities operated in ignorance of the opportunities they were missing for transferring their inventions and, in some cases, simply their ideas to society and to their Region.

What distinguishes *innovative universities* from the mainstream is, however, their holistic approach to Knowledge Transfer and recognition that there is a virtuous knowledge transfer and exchange cycle: namely that spin-out and start-up activity, training business and the community (CPD programmes), the Science Park strategy, the curriculum (with a bias towards offering more professionally oriented programmes) can be interlinked and underpinned by a 'third mission' strategy whose hallmarks are usually a pervasive enterprise culture, a strong underpinning by research outcomes and the formal recognition of this role, or mission, through a governance and management framework that joins up the *innovation* processes.

Research, as in the figure below, tends to provide the essential generator to enable a free flow of knowledge from the labs to the curriculum, leading to CPD (training) and sparking the innovation infrastructure (comprising applications such as business start up schemes, or incubators, with access to Science Parks for suitable companies).

### The Virtuous Knowledge Transfer Cycle



## **Structure of the Study**

Using the consortium membership as a baseline, *DIFUSE* profiles each of the eight universities, defines their role in the Region; and addresses and benchmarks current KT practices, in particular, focusing on six main themes

### ***University Profile***

Each university has their own particular history, background, economic conditions and development path in Knowledge Transfer. The regions have different histories, but so do the universities. Often they are different sizes, have different academic programmes, beliefs or missions and varying numbers of students, both undergraduate and post-graduate

### ***KT organisation***

The issues covered here include: organisation form (e.g. public or private), staffing; policies and processes in Knowledge Transfer and commercialisation; services to business and the community; funding versus income, business models – notably support for SMEs *Encouragement and support for scientific entrepreneurship and incubation*

The eight ECIU members' approaches to supporting entrepreneurship for staff, students and enhancing the enterprise culture are compared; the management of IPR is reviewed, plus policies and support measures for investment in spin-outs as well as defining the University's relationship to investors

### ***Policies on IPR protection and exploitation***

This is the opportunity to look at the possible impact of IPR ownership policies on the incentives of academics to participate fully in KT activities, and especially transorganisational IP management

### ***Methods of working with business partners***

Knowledge Transfer may be managed through many means other than commercialisation of assets. There is CPD, consultancy and student placement. For example, each university has experience of working with industrial partners, large and small, regional, non-regional; they have developed an effective university corporate approach

### ***The University and its Region***

The University in the Region and the role universities can play in the context of regional development. In summary, universities are seen as being important in that they can act as hubs of regional innovation systems and can provide a focus for networking between knowledge producers, users within a region and link them to more global knowledge networks.

## **Methodology in the Report**

During the *DIFUSE* project, a structure for each university to present their profile and T&KT related activities was agreed. Each university collated and presented their T&KT information in a series of sections controlled for length and content. Each

section follows a specification for each university, which allows a summary of the major characteristics for ease of comparison as follows:

*Section 1: University description*

*Section 2: University's policy towards exploitation*

*Section 3: Implementation of Knowledge Exploitation*

*Section 4: Case Examples*

*Section 5: Interface to Business Community*

*Section 6: Business Creation*

*Section 7: Building entrepreneurial Culture*

*Section 8: Regional Policy Context*

*Section 9: Self-assessment (SWOT)*

*Section 10: Perspectives*

These comparisons provide in themselves some valuable insights from which other universities with less well developed KT activities could draw useful comparisons. However, the ultimate goal of *DIFUSE* is for the ECIU to draw up proposals for some form of common strategy, mutually supporting trans-national technology transfer and exchanging exemplars of effective methods which also could be transferred as a role model for others.

There is still much to be done in Europe to make these KT activities as effective as any innovative universities round the world. Marketing mechanisms are much less developed for historical, political and structural (legal and incentive-related) reasons compared with the US. It is also a fact that few KT offices, if any, are really self supporting financially in the US or Europe. Their role is much more strategic; moreover, the value added to the university by effective KT practice cannot just be measured in terms of revenue, but by changes to the culture of the university and the enhancement of its ability to attract foster more entrepreneurial academics and students.

## **Best practice The Innovative University**

### **UNIVERSITY OF AALBORG, DENMARK**

#### **University Profiles**

Aalborg University was established in 1974 and is considered a new university. The study method; Problem Based Learning, differs from the older universities in Denmark and so does the rate of cooperation with the surrounding society. The University is located in the northern part of Denmark on the peninsula of Jutland. The regional composition of industries, company sizes and capacity for innovation lies in the neighbourhood of the country average, when excluding the two largest cities of Denmark; Copenhagen and Aarhus from consideration.

There are 495.068 inhabitants in the Region of North Denmark spread out in the 27 cities. 164.000 of these inhabitants reside in the regional capital of Aalborg. Aalborg University is the only University in the region of North Denmark.

Despite the fact that the capacity for research and innovation in the northern Jutland region has followed an upward trend the past 20-30 years, the share is still below the country average. Particularly, regional research and innovation within the private sector are falling behind while a significant growth in the extent of research within the public sector has taken place, which can be attributed to the university and its ability to attract external research funds.

The University was established after many years of local political activities in relation to the establishment. This support for the University formed the basis for a close dialogue with the surrounding society relying on the development of contact and cooperation committees with the business sector, trade unions and cultural life.

The local anchorage of the University found expression in for example the university's integration of a number of institutions with medium length educational programs such as engineering, librarian and social worker educational programs. This occurred simultaneously with the decision of basing the University's research and educational activities on interdisciplinary integration, problem orientation and group work.

The University has a reputation for its close cooperation with the surrounding society through research, student projects, internships etc. as well as a reputation for its students to finish their studies in time and for a high percentage of retaining students through the length of their studies

## University size 2005

Full time students 2005	PhD. students
13638	564

Staff	Humanities	Social science	Engineering and science	Other	Total
Professors	16	20	86	3	125
Associate professors	56	90	293	6	445
Assistant professors	21	21	117	-	159
Other scientific staff	40	17	122	7	186
Adm. managers	-	-	-	15	15
Academic technical / administrative staff	28	5	49	103	185
Technical / adm. staff	37	46	217	251	551
<b>Total</b>	<b>198</b>	<b>199</b>	<b>884</b>	<b>385</b>	<b>1666</b>

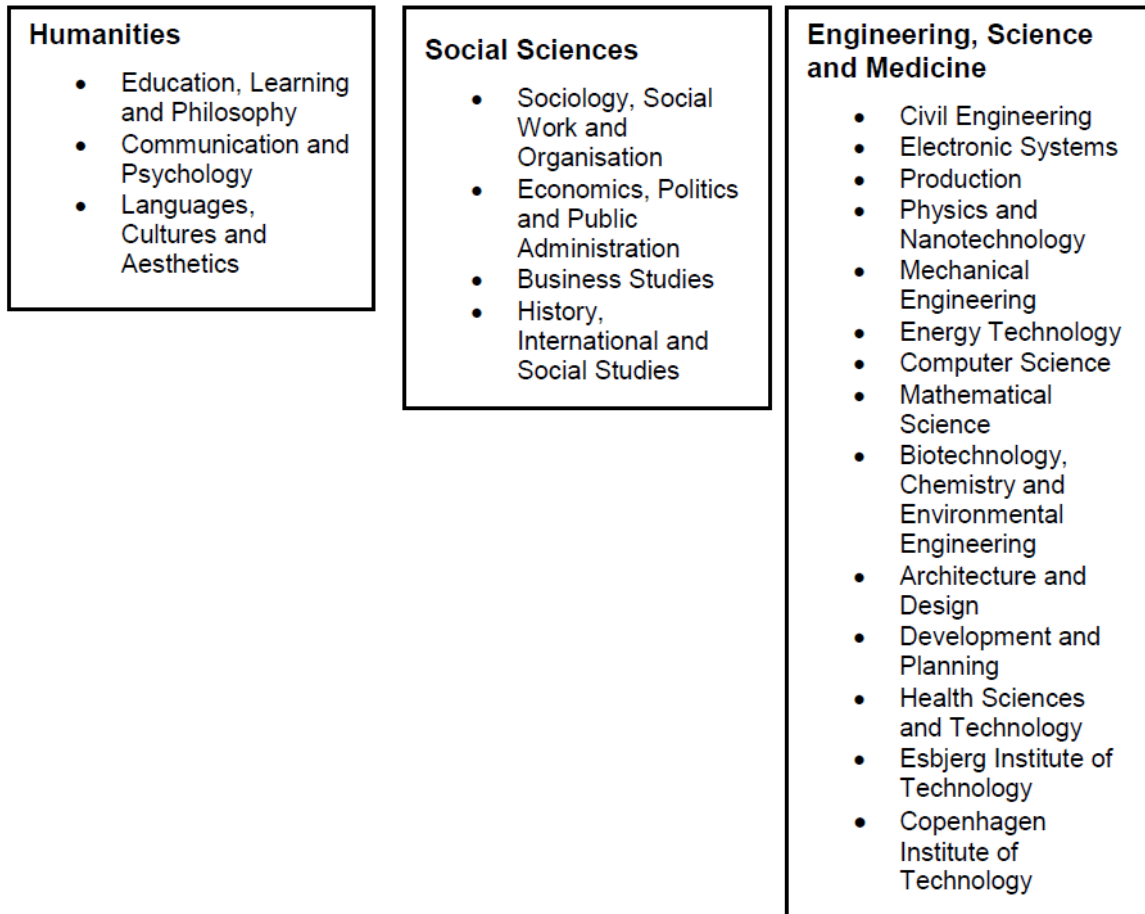
## Mission Statement

“(...)Aalborg University intends to contribute to the knowledge of global society as well as the prosperity, welfare and cultural development of Danish society. This will be achieved through research, research-based education, and exchange of knowledge with society in general, and always to the highest international level. Within this framework Aalborg University sees itself as an internationally-oriented network university with a special mission within:

*Problem based learning* In this field the university will ensure close interaction between theory and practice in order to bridge the gap between the university and the rest of society by relying on and developing the problem-based project-work model. Interdisciplinary. In this field the university will achieve new knowledge and cognition through interaction across disciplinary areas and scientific paradigms as well as across basic research and applied research.

*Innovation* In this field the university will function as a knowledge-producing institution of cultural significance by contributing to technological, economic, social, and cultural innovation in society through entrepreneurship as well as transfer, communication, and exchange of knowledge.”

## Research Profile



Aalborg University consists of three faculties (see above figure) that constitute the university profile: Humanities, Social Sciences and Engineering, Science and Medicine. The departments and centres cooperate with other national and international networks, centres and other research forums. Aalborg University has departments in the cities of Esbjerg and Copenhagen, Rome (Italy), Birla (India) and Bandung (Indonesia) and has numerous collaborative agreements in other cities around the world. In 2005 the University's research budget reached more than €67 million.

### Distinctive features

There are three main distinctive features about Aalborg University. The first one is the Problem-based and group work methodology. The ability to work together as a team and independently solve problems, often in cooperation with external partners is of great value in the labour market.

The second is the close interaction with the surrounding society and industry and the third is the fact that the university is young and innovative, also when compared to the other universities in Denmark. This affects the methods of working and the discourse of the university as a whole.

## **Policy towards Knowledge Exploitation**

Denmark has a “law on inventions made within public research institutions”, law no. 347 of June 2nd 1999. The law came into effect January 1st 2000. According to this law, the researchers are obligated to notify the university in the event that he/she has made a patentable invention. The university will decide whether to take over the researchers’ rights.

In the event that the university decides not to take over the rights, the rights will remain with the inventor, and he/she is free to commercialize the invention on his/her own.

The law also grants the university a right to enter into agreements with third parties regarding inventions that have not yet been made. This means that the Patent and Contract Office defines IPR policy for the university and determines whether the rights to the future research work shall be assigned or retained.

According to the law on inventions within public research institutions, the scientist is entitled to receive a reasonable remuneration of the net revenue generated from the invention. At Aalborg University (and numerous other Danish institutions) the standard model is that the scientist or scientists receive 1/3 of the net revenue, the scientific group or department where the scientist is employed receives 1/3 and the University administration as such receives 1/3 of the net revenue. The model can be adjusted according to specific circumstances.

All research agreements and contracts regarding consulting, non-disclosure agreements, license agreements and assignments must be formally accepted by the Patent and Contract office before signing. In 2005, the Patent and Contract Office received notification of 53 new inventions. This is an increase since 2004. The Patent and Contract Office spin out about one company a year. The office closed one single license deal in 2004. This deal was with GE Healthcare in the US and involved a life saving technology that can be used to detect different heart diseases. The deal got heavy media attention in Denmark. The deal has motivated other researchers to come forward with their inventions.

The Patent and Contract Office has a close relationship with the Accounting Division that takes care of the payment to the University in connecting with research activities, consulting of commercialization. Funds will not be made available to the individual researcher unless the legal base for the transferral is formally accepted by the Patent and Contract Office.

This practice prevents that researchers sign agreements on their own and it ensures that all the companies/external parties that work with Aalborg University are given the same conditions seen from a legal and financial point of view.

## Implementation of Knowledge Exploitation

### Breakdown of Research Financing (000 euros) 2005

Public funded research, including government and EU	18.421
Private funded research	9.991
Foreign funded research (EU not included)	1.737
<b>Total</b>	<b>30.148</b>

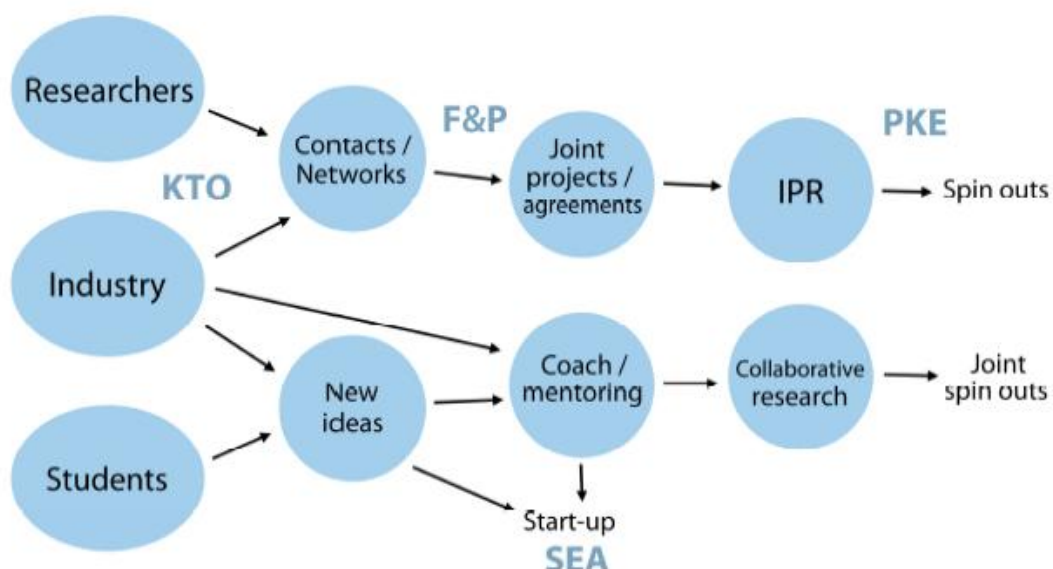
### KT Process Description

The main KT activities are maintained by the AAU Innovation, which is a part of the central administration of the Aalborg University and therefore a service unit for all of the faculties of the university. The main parts of the KT activities are placed at the AAU Innovation, which receives 1.975.970.000 € all together. Out of this amount 1.201.600 € comes from external grants and 774.366 € are funded from the University.

The role of AAU Innovation is to ease the entrance to the University and to support innovation, business creation and growth in the business community of the region through its four offices; Knowledge Exchange Office, Patent and Contracts Office, Project and Funding Office and the SEA entrepreneurship office.

### Knowledge Transfer Process

Typically the workflow is as described below:



The role of the Knowledge Exchange Office (KTO) is to assist the University and organisations in creating and strengthening mutually beneficial relationships. This is used between researchers and industry in the creation and maintenance of contacts and networks.

Through the Project and Funding Office (F&P), joint projects are formulated and funds are applied for and joint agreements can be made. When the partners need a collaboration agreement, the Patent and Contract Office (PKE) gets involved and IPR can be developed and Spin Outs are created. A large amount of the collaborations go all the way through to the Patent and Contract Office. This is caused by the extensive informal collaborations that take place all around the university. Through the process of the collaboration, some might need the expertise of the Patent and Contract Office.

The students receive entrepreneurship training in the early phases of the business development. This is done through the courses, events and pre-incubators. Through SEA's activities with industry, new ideas are created and Start-ups are established. Others use SEA's activities to work on turning their idea into a business plan through coaching and mentoring before establishing their business. Other students go into collaborative research and establish a joint Spin-out with Aalborg University.

The Patent and Contract Office are certain that the university receives notice of "just a few" of the inventions that are made at Aalborg University (tip of the iceberg). It is expected that some researchers hide inventions from the University for their Personal Benefit (the inventions are assigned to third parties for economic compensation through private consultancy agreements). It is also expected that some researchers choose not to notify the University because they do not "believe in the system"; meaning that they don't think that commercialising technology should be the task of a public university ("old school").

Furthermore, it is expected that some researchers are unaware of the fact that they sometimes generate patentable inventions and that technologies are made public before patenting possibilities have been considered. And it is also expected that some researchers do not know that there is a Danish law regarding inventions in public research institutions and that these people do not know that there is a university office that deals with commercialisation activities (mainly foreign employees).

In the event that the Patent and Contract Office is made aware of inventions that haven't been reported, we contact the researchers in question and/or the department head to make sure that the mandatory procedures are followed. It has been made clear by the top level at the university that the office has to follow up on these individual cases to show that there is a consistent system and that the rules must to be followed.

The Patent and Contract Office market the office services internally but only to some extent, through articles in the university magazine, websites and media. We have chosen NOT to market the office services heavily as the Patent and Contract Office is a busy office and we already have more technologies that we can handle.

The Patent and Contract Office is both hated and loved. The office is in charge of drafting, negotiating and accepting all agreements with third parties which involved research or consultancy work in addition to commercialising technologies. Some researchers are very happy that there is a team of lawyers to take care of their agreements. Other researchers view the involvement of lawyers as absolutely unnecessary as lawyers will only ruin the good spirit and make easy matters complicated. All in all, it is believed that the office services are appreciated by most people and by the top level of the university, hereunder the department heads which are responsible for the agreements and projects that faculty get involved in. The employees of the Patent and Contract Office are seen as competent, service minded and understanding. The main negative complaint is regarding time as the office lacks the necessary manpower to maintain a quick service (two open positions as present).

### KT organisation and support tools

Staff at AAU Innovation

KT staff	Academic	Secretarial	Total employees	% of academics
KE Office	9	3	12	75%
Fundraising and management	10	4	14	71.42%
SEA	6	2	9	66.66%
Patent and commercialization	5	2	7	71.43%
<b>Total employees</b>	<b>30</b>	<b>12</b>	<b>42</b>	<b>71.43%</b>

There is a broad variation in the qualifications of the staff, and because of this, many different competencies come into play. A large percentage of the academics are young and educated from Aalborg University and therefore the innovative and independent way of thinking comes natural and is indispensable in their work.

### KT Funding

University funding	780 000 €
External funding (e.g. EU)	1.2 million €
<b>Total</b>	<b>≈ 2 million €</b>

### KT Periphery

**The KT Periphery primarily consists of the NOVI Science Park.**

NOVI Innovation A/S has been appointed one of Denmark's seven innovative environments with focus on scientific research results. On behalf of the Ministry of Science, Technology and Innovation, NOVI Innovation A/S invests in new business opportunities, focusing primarily on telecommunications, IT, and medical technology – with close links to i.e. Aalborg University.

Aalborg University makes a big effort to attract external capital and cooperate with its surrounding business community. This has led to a unique model for financing, which has been incorporated at one of the faculties.

For example, at the faculty of Engineering, Science and Medicine a customized model of financing has been incorporated. When a project is financed externally by a private company with 50%, the faculty equals the external financing in order for the project to be financially stable and successful in its research. The finance model can be used for new positions or new equipment, as long as it is for new and larger projects. Besides development of research, the model ensures the students the newest research results.

## **Case Examples of Major and Distinctive Initiatives**

### **Case study 1. Biomed Community**

*Science & Innovation for the living – Bio- & Medical Technology Competence in Denmark* Biomed Community is a cooperation that has the objective to develop and promote North Denmark's cluster within Life sciences. The project-partners represent the most important players in North Denmark within Biotechnology, Medico-technology and Health Science & Technology. The competence group, which encompasses Aalborg University, Aalborg Hospital, and Bio-Medical companies, The County of North Denmark, Aalborg Commercial Council, The Region Aalborg Cooperation and NOVI Science Park contributes with resources and facilities.

The cluster of Bio- & Medical Technology in North Denmark is characterized as a very active international innovative environment. Education and research activities, Bio- & Medical Technology companies, plus a substantial support from the public regional partners, characterize the development, and thus create a great potential for stimulating new Bio- & Medical industries in the region.

During the recent years, Aalborg University has established a substantial activity within Health Science & Technology, Medico-technology, Biotechnology, and related areas that may be overall termed Life Sciences. At the same time, an innovative commercial environment has been established that consists of approximately 35 companies. This synergy has resulted in a dynamic competency cluster, which has dismissed all critique and is now realizing its full potential by aid from a goal-oriented public trade and industry policy.

Aalborg University has a long tradition for cooperation with the industry, which has created a synergy between the research and development of new products and companies. This knowledge and synergy has proven strong in the creation of the well established competency cluster within Electronics and Telecommunications. Today, large international companies are placed in North Denmark. These companies have chosen North Denmark because of the easy access to knowledge and technology transfer. Experience shows that a growth potential is existent within the area of Bio-& Medico. The potential can be realized through cooperation in the Bio-and Medico technological competency cluster in North Denmark. The Biomed Community has

documented state-of-the-art and future development possibilities within research and education as well as innovation and product-development within industry. Some of the recent results between the partners are; new Bio-Medico businesses, establishment of six research centres, Bio Medico drives in five countries, nine contacts concerning commercialisation, 18 product sheets to promote Bio Medico sales and strengthening the business environment and network.

## **Case study 2. Centre for Embedded Software Systems (CISS)**

### **CISS**

CISS is a unique business oriented centre of excellence within the area of embedded software systems and the leading sparring partner for companies of all sizes within this area. CISS is established at Aalborg University based on internationally outstanding research groups within Electronic Systems and Computer Science. All involved research groups have significant experience with industrial collaboration the objectives of CISS are: The main objective of CISS is to strengthen the research and development cooperation between industry and business and the regional IT research community for the benefit of both parties.

CISS aims at creating close and constructive relations to industry leaving our business partners in a strong competitive position within their respective business areas. Further, CISS is focusing on giving our researchers the opportunity of focusing their research on the actual needs of industry as joint projects are determined and realised.

#### **CISS research projects**

Over a period of 4 years, CISS has set up 35 projects with industry, of which 19 involves business oriented PhD students.

The projects have been set up in cooperation with:

*S-Card, RTX Telecom, Analog Devices, Aeromark, Simrad, Danfoss, Grundfos, IAR Systems, Gatehouse, Ericsson Telebit, Man B&W, Samsung, Aalborg Industries, Siemens, TDC, Skov, Novo Nordisk, FOSS, Exhausto, ETI, TK Systemtest, Spacecom, TKS and Panasonic.*

### **Interface to the Business Community**

Activities between Aalborg University and the surrounding business community are primarily handled by the Knowledge Exchange Office. Through their numerous networks, they are in contact with a substantial part of the companies of the region. Several of the networks contain the business members of a cluster in the region and have broad contact to similar business partners.

The role of the Knowledge Exchange Office is to assist the University and organisations in creating and strengthening mutually beneficial relationships. The Knowledge Exchange Office establishes relationships with companies and organizations by building and administering 24 networks in which university researchers and representatives of external organisations discuss the development in their field and through facilitation of contacts between students and companies who have topics or problems they would like students to investigate. In an

increasingly competitive and complex world the forming of strategic partnerships plays a key role in ensuring the University's relevance and responsiveness. It has become evident that more co-ordination and communication is needed to secure that the University is meeting the real needs of external collaborating organisations. Otherwise significant opportunities for corporations and organisations as well as the University risk being lost.

### **Advice on Technology Exploitation offered to third Parties**

The Patent and Contract Office does only provide services for Aalborg University as such and will only support the activities of researchers that are employed at the university. Legal advice is always given to protect the interests of the university as such (the researchers employer) with due respect for the interests of the researcher in question. The Patent and Contract Office are allowed to offer legal services to private people without authorisation from the Ministry of Justice but it is not allowed to market such services. Only authorised lawyers are allowed to market their services. Furthermore, offering legal services to researchers as private individuals would result in a conflict of interest.

### **Advice on Business Development Offered to third Parties**

Business development advice is facilitated by SEA, who through the office network is able to link aspiring entrepreneurs with the specific counsellors they need. This is done through the 8W program or through personal advice given by counsellors.

## **Business Creation**

### ***Activities Supporting Spin-outs***

The spin-outs of the university primarily get support from the Patent and Contract Office. The student spin-outs normally go through the services of SEA, before the Spin-out is achieved. If the business is a potential partner for the University and IPR is needed, the Patent and Contract Office gives the support. The Patent and Contract Office decides whether the business has a commercial opportunity and whether it will get the IPR through university collaboration.

SEA is the office at Aalborg University that combines all of the innovation and entrepreneurship activities at and around the university. At SEA 10 employees work with the promotion of an entrepreneurial culture at Aalborg University.

The office addresses students, graduates, researchers and others from the region outside the university, who are working on their own business and offers various courses and events. SEA and its student directed activities named *kick-start* are known by the students and tries to fulfil the needs of the students, who are interested in starting their own business. The needs of the students are monitored through the above mentioned co operations and through the annual survey, conducted by the Department of Business Studies.

## **Activities under SEA are:**

*Collaboration with IDEA – International Danish Entrepreneurship Academy*  
*Venture Cup – Business plan competition*  
*Collaboration with the First Step network*  
*Courses directed at specific professions*  
*Pre-incubators*  
*8W - Entrepreneurship Training with Mentor Arrangement*  
*Entrepreneurship events*  
*Stardust-AAU network*  
*Entrepreneurship courses*

## *Other Services Provided*

An annual survey “Iværksætterpuls” (the Entrepreneurial Pulse) is conducted by the Department of Business Studies. The survey measures the student’s interests, needs and wishes for entrepreneurship training. It also measures the approximate amount of student Start-ups. The annual survey is a great help to keep track of the entrepreneurship interest at the university and a good indicator on whether there are enough courses and activities within entrepreneurship.

## **Building an Entrepreneurial Culture**

The University’s general position on promoting entrepreneurship is very positive, which can be seen in the University Mission Statement. A large part of the departments are equally supporting the promotion of an entrepreneurship culture. The distinction between the departments position on the subject can be seen through a survey distributed to all the study boards. The survey was conducted by the department of business studies in June 2006.

According to the survey, 12 of the study boards provide entrepreneurship activities which give the indication that they certainly applaud promotion of an entrepreneurship culture. 17 of the study boards do not distribute entrepreneurship activities and 70% of these only see a small need or no need at all for such activities. In the survey it is pointed out that the density of the existing curriculum leaves little room for activities, which are not written directly into it.

The results of the survey confirm the perception that there is a substantial difference between the entrepreneurial cultures at the various fields of study.

## **Enterprise Strategy**

The implementation of entrepreneurship activities in the entire curriculum’s before the end of 2008 is a recent initiative, which explains the many different initiatives at the different departments. So far the university is further plans for how the implementation should be conducted. Neither has the university made plans for sanctions, if the objective is not met. In order to build an entrepreneurial culture at Aalborg University the SEA office uses numerous ways, to affect the students as well as the scientific staff at the University. This is done through cooperation with regional, national and international partners, through cooperation with the different fields of

study and through cooperation with the student organisations. The services and events at SEA started in 2001 as part of the Knowledge Exchange Office. Because of the profound interest in Business Creation the office is now independent of the Knowledge Exchange Office and has grown from 3 to 10 employees in the past year.

To further the entrepreneurial culture of the university not only to the students but to the university as a whole, SEA is trying to affect the researchers and counsellors to think entrepreneurial when considering their whole line of study and curriculum opposed to thinking entrepreneurial just concerning one course per semester.

## **Regional Policy Development**

### *Current and emerging policies and their likely impact*

For several years, the government in Denmark has been focusing on entrepreneurship and innovation as a way to help along the regional development and as a way to live up to the competition on the global market. Entrepreneurs are, in Denmark as in many other countries, viewed as very important for the dynamics of the economy since new growth companies both challenge the existing companies as well as strengthen the competition. The entrepreneurs and the new growth companies are seen as great contributors to the lowering of the unemployment rate. Having a high turnover, the new companies greatly contribute to the growth of the Danish economy.

The industrial structure is dominated by industrial production while a growth is recognized within more knowledge based industries, especially the IT area which has grown into becoming the third largest industrial concentration in Denmark. The industrial structure is dominated by small businesses as well as businesses that are part of national and international businesses. Additionally, the share of entrepreneurs with a further educational background is equal to less than half the share in the Copenhagen area. The future regional challenges are:

- Renewing and readjusting the dominant industries in order for them to compete on price to a lesser extent and to a higher extent compete on differentiation
- Developing knowledge based industry
- Developing cooperation between businesses and the public sector within research and innovation.

The cooperation between the public sector, businesses and universities is known to be more extensive than in the rest of the country due to the regions above mentioned challenges.

In the government's recent "Globalization Report" it was stated, that the goal was for Denmark to be among those European countries, where most companies are started. The second goal was for Denmark to be among those countries in the world with the highest rates of entrepreneurs in 2015.

### **The strategy for this is:**

- For the students in the primary-, secondary- and upper secondary schools to be working systematically with the generation of ideas.
- For the vocational schools and the higher educations to offer the students courses in entrepreneurship.
- New “Greenhouses” for businesses that give easy access to qualified counselling to growth entrepreneurs.
- Lower taxes to reduce the barriers for the growth entrepreneurs.
- Improvement of the access to finance and to investors with experience within business development.
- To ease the administrative burdens for the growth entrepreneurs.
- To speed up the process of bankruptcy declarations and give re-starters better conditions.

The regional context plays a secondary role, since the Ministry of Science Technology and Innovation is solely in charge of the decision-making for the universities. The regional context plays a role in the cooperative aspect, where well established networks of cooperative partners are able to make the region an attractive place for Start-up companies, which are innovative and of a high technological level. The cooperation furthers the opportunities for development and for reaching the users of the initiatives.

The regional policy on the area has been independent but has also been trying to adapt to the development of EU on particularly the target 2 and target 3 programmes to be able to apply for funds. Through the business community the university makes an effort to strengthen the relationship to the businesses in the region and through that, strengthen the business community of the region as a whole. On a national level the universities are viewed as “regional growth engines”. Aalborg University takes this role very seriously and made good results in the recent national report, Reg Lab, on the Danish universities as “Regional Growth Engines”.

From the 1st of January 2007, the structure of the Danish regions will change. This process has been ongoing for a number of years and may alter the regional context.

## Self-assessment SWOT

<b>Strengths</b> A large and well established external contact surface and thereby many collaborative agreements, contracts and contacts are made and maintained.	<b>Weaknesses</b> A large part of the TT and KT activities are externally financed, which gives an uncertainty about whether the projects will have a viable future. It can also affect the coherency of the activities.
<b>Opportunities</b> Technology transfer, knowledge transfer and entrepreneurship is on the national agenda and actions are made to implement and strengthen the opportunities within these areas. In the new regional structure, which will be put into effect January 1 <sup>st</sup> 2007, expectations of the universities role as regional growth engines will be higher, and this can give some opportunities.	<b>Threats</b> With regard to the expectations of the universities as regional growth engines, the universities might get funded for the activities, but the focus on how the universities will fulfil the role might be neglected.

## Perspectives

Through the many well established contacts, agreements, network and events, Aalborg University will be standing strong in the new role as a regional growth engine, in terms of knowledge exploitation. Yet there is reason to be aware of the national and regional development and of the development within external financing opportunities as well as the expectations towards the universities fulfilment of their roles. In order to reduce the uncertainty of the financial stability from year to year, efforts are made to ensure continuity in the activities.

The combination of the new regional structures and the national focus on technology transfer, knowledge transfer and entrepreneurship leaves Aalborg University with high expectations of the future opportunities in respect of the financial stability and the interest collaboration between the industry, the university and its students.

One of the main areas for which Aalborg University is looking to improve drastically is the establishment of an alumni network, which has been having difficulties getting started.

Aalborg University would like to improve the inflow of alumni and the continual activity of these alumni. Therefore Aalborg University will look into the opportunities of improving the alumni network through exchange of experience. A strong alumnus could ensure a more stable flow of financing to activities at the university and could therefore meet some of the threats and weaknesses of the SWOT analyses.

## Anex

### Aalborg University

Aalborg University Stats.	2003	2004	2005	Total
No. of invention disclosures ("pre-patents" filed)	28	38	53	119
No. of patents filed	12	6	14	32
No. of patents granted	0	0	1	1
Licensing income €	-	-	35000	35000
No. of licenses assigned	2	2	1	5
No. of spin outs	1	1	1	3
No. of student/ staff start-ups	-	-	-	Unknown
University financial investment in spin-outs € (in cash)	0	0	0	Not allowed in Denmark
Third party investment in spin-outs € (external investors)	-	-	-	670000
No. of industrial contracts (incl. training and similar)	-	-	-	60
No. science parks (substantial university share) and size DEFINE	0	0	0	0
No. of incubators	-	-	-	10