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FIRST EVALUATION OF CTS - CENTRE FOR TRANSPORT STUDIES AND LIGHTHOUSE

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About VINNOVA

VINNOVA is a State authority that aims to promote growth and prosperity throughout Sweden. Our particular area of responsibility comprises innovations linked to research and development. Our tasks are to fund the needs-driven research required by a competitive business and industrial sector and a flourishing society, and to strengthen the networks that are such a necessary part of this work.

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- contribute making Sweden a leading research nation in which research of high scientific quality is conducted.
- promote sustainable growth and increased employment by acting to increase competitiveness and the emergence and expansion of successful companies.
- support research and development work of the highest quality in areas such as engineering, transport, communications and working life in order to promote renewal and sustainable growth.
- stimulate Swedish participation in European and international R&D collaboration and in the exchange of experience in the field of innovation.

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RESEARCH AND INNOVATION FOR SUSTAINABLE GROWTH

First evaluation of CTS – Centre for Transport Studies and LIGHTHOUSE

by

Michael vom Baur
Atilla Incecik
James Odeck
&
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VINNOVA´s foreword

In this evaluation report VINNOVA present the first evaluations of the centers LIGHTHOUSE and CTS.

To provide world leading competence forum for collaboration between the private and public sectors, universities and colleges, research institutes and other organizations that conduct research are vital for small and internationally dependent countries like Sweden. The need to focus its efforts on strong, internationally distinguished R&I milieus is a critical factor to promote sustainable growth. Internationally strong research and innovation milieus (R&I milieus) are one of the most important competitive factors in the face of global competition.

The evaluation of Phase 1 is focused on the measures taken to build an effective organization and the potential for long-term development. This is an opportunity for evaluation teams to give advice and recommendations on how each centre can be even more efficient and effective. It is also an opportunity for the scientific experts to get to learn about the centre at an early stage and discuss scientific issues that are critical for the future.

On behalf of VINNOVA we want to express our great appreciation to all the international evaluators. They accomplished their very hard work with great enthusiasm and professionalism. Their reports will be of great value for the further development of the centers LIGHTHOUSE and CTS.

VINNOVA in July 2010

Anne Lidgard
Director and Head of
Transport & Environment Division

Martin Svensson
Head of Technology Development Department
Transport & Environment Division

Preface

On 15 – 17 June two Competence Centres with VINNOVA funding, Centre for Transport Studies, CTS, at Royal Institute of Technology in Stockholm and Lighthouse at Chalmers University of Technology in Gothenburg were evaluated for the first time after start-up. Hence, emphasis was laid on organization, strategy and initiation of scientific research programmes, educational activities, cooperation with industry and international contacts..

Both evaluations followed the same procedure. The evaluators had a preliminary discussion in the evening before the actual evaluation, then met for presentations and interviews with centre researchers, board, university representatives and graduate students from 9 a.m. to 6 p.m. and wrote the first draft of the evaluation reports in the afternoon and evening of the same day. The evaluations are based on what we learnt during the interviews as well as on written reports submitted to VINNOVA and the evaluators about a month before the evaluation and other documents submitted by the Centres.

We were impressed by the quality of the presentations, the openness of all discussions and the enthusiasm showed by those responding to our questions. Both CTS and Lighthouse differ from most Competence Centres supported by VINNOVA in that they are founded due to explicit needs brought forward by industry and university, not through the usual procedure of responding to calls for applications. Therefore, participation of several members of the Boards of the centres and high-level University administration was particularly appreciated as it helped us to clarify issues with regard to the way the centres were formed, their organization and their importance. We enjoyed the possibility to discuss with PhD students and note that the time allocated for this tended to be a bit too short.

We would also like to thank VINNOVA, in particular Per Ekberg and Per Norman, for a smooth preparation and organisation of the evaluation procedure. The instructions given by VINNOVA to the Centers for reporting to the evaluators and other arrangements were excellent. We note that in spite of these, the tables describing financial matters and personnel from both centres did not follow VINNOVA instructions. Hence, much time was spent clarifying these matters during the evaluations. This could in the future be avoided if VINNOVA, as soon as reports are received from centres, would check that they follow instructions in this respect and, when needed, ask for corrections.

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Content

1 The Centre for Transport Studies – CTS

Royal Institute of Technology – KTH, Stockholm
A Competence Research Centre with funding from VINNOVA

1.1 Introduction

On June 15, 2010 the Centre Director Jonas Eliasson, the chairman of the CTS Board, Stefan Fölster, partners from industry and governmental authorities, university representatives, and graduate students had meetings with the evaluation team at Royal Institute of Technology. The scientific expert of the evaluation team, James Odeck, addressed matters concerning research strategy, projects and progress. The generalist evaluators, Per Stenius (Chair), and Atilla Incecik, addressed matters such as organization and management, finance, interaction between Centre partners and the university, student recruitment and educational activities. We thank all members of the Centre and the VINNOVA team for their efforts in providing information and facilities for the evaluation.

1.2 Vision, Mission, Strategy, and Success Criteria

Vision, Mission, Long-term Strategy and plans for development

The vision of the Centre is stated to be "to contribute to the creation of an efficient, equitable and sustainable transport system by improving the understanding of and knowledge about the transport system, its users and the interaction between the transport system and societal development". It is clear that during the start-up phase, with respect to land transport, the Centre has been put on a track that ensures good chances to fulfil this vision.

To fulfil this vision, the Centre strives to conduct high quality research that can be put into practical use in the shaping of the transport system. To accomplish this mission, the Centre has commendably formulated a number of quantifiable goals and formulated strategies of fulfilling each of those goals.

Success Compared to Success Criteria

In the report to the evaluators, CTS gives an excellent description of the extent to which the goals are on their way to become fulfilled and of the strengths, weaknesses and potentials for improvement of the activities dictated by the goals. Plans for development over the next three years have been formulated for each activity: international visibility, knowledge dissemination, internal cooperation, new research areas, career opportunities and financial base. The general impression is that the start-up phase has been very successful; some suggestions for further improvement are given below. During the hearing, Board members repeatedly brought forward the importance of balancing

possible future developments against available research capacity. While the evaluators find this careful analysis commendable, we also submit that more could be done with respect to widening research towards other modes of transport, in particular, sea and air transport and towards broadening the financial base by including more private consultancy companies and other research providers.

1.3 Organization and Management of the Centre

The Board of Directors

The Board of Directors is appointed by the CTS partner organizations, which include KTH, VTI, WSP Analysis and Strategy, Jönköping International Business School, Swedish Transport Administration, Transport Analysis, and National Public Transport Agency. The responsibilities of the Board of Directors include:

- setting the strategic research agenda
- promoting the centre and cooperation between all the stakeholders
- stimulating large scale multi-disciplinary project ideas and approving the projects proposed by partner organizations
- monitoring the progress of the projects
- prepare a budget and monitor the income and expenditure against the budget.

The evaluation showed clearly that Board members, who are senior executives in their own institutions, are fully committed to the successful realization of the Centre's long term vision, mission, and aims. Judging from the success of the CTS so far, it is evident that the Board of Directors has been able to provide valuable high-level support to the Centre and to promote the credibility of the Centre's activities. In this respect, the evaluators noted that the Dean of KTH enthusiastically praised the work that the Centre has done so far in making the different units at KTH dealing with transport matters acknowledge each other and finding an interface for cooperation.

Centre Director

The CTS Director was appointed by senior management of KTH, in consultation with partners. He is responsible for the day-to-day operations of the Centre and also provides scientific leadership. The Director has a clear vision and leadership qualities and has been able to create a well functioning research centre, which is undertaking a large number of projects and effective dissemination of the research output through external publication, internal seminars and mini conferences. Today, he is a very well known scholar in Europe and the rest of the world within the field of "transport modelling" and "transport economics".

Management Team Structure and Performance

The Management Group consists of the Centre Director and members representing KTH, VTI and JIBS as well as the Deputy Director and an administrator. This structure may be too small for the evaluation of research projects proposed by partners and to

provide feedback. Therefore, the Management Group could, when deemed appropriate, be enlarged by appointed representatives from partner organisations. The evaluators believe that this would assist the Centre to formulate a more cohesive research strategy and a more distinct way of allocating projects to the different focus areas.

The system of appointing research coordinators for focused discussions on on-going research and ideas for future research is commended.

International Scientific Advisory Board's Role

The early appointment of an International Scientific Board, consisting of eminent members from three different European Centres of Excellence is commended. We advise that International Scientific Advisory Board's recommendations following their visit to the CTS on 30th November, 2009 be followed up, as this will assist the successful further development of the CTS and its attainment of international reputation.

1.4 Internal and external communication

Processes for Idea Generation

At present, new project ideas can be initiated by a researcher, a research coordinator, and members of Management Group, the Board of Directors or partners. To collectively identify research gaps, this process may be enhanced by organising workshops attended by the stakeholders of the CTS as well as a wider group of research providers and end users Following these workshops researchers of the CTS can prepare proposals for the approval of the Management and the Board of Directors in the context of a well-defined strategy and focus research areas of the Centre.

Project Management

Research projects at CTS are managed by research coordinators who are either academic staff from KTH or JIBS or a staff of VTI or WSP. We advise that regular progress reports be submitted for feedback and monitoring by the Management Group in its expanded form as suggested above.

Communication within Centre

Communication within the Centre appears to be quite effective through academic seminars, CTS mini-conferences, VTI seminars, CTS lunch seminars and coffee break information.

Interviews with the graduate students indicated that more direct contact between them might be useful. We recommend that the CTS endeavour to organize more workshops in which students from different projects report their research progress to each other, preferably organized by the students themselves. This could be organized once or twice a semester. Further, students from other institutions in Sweden and Europe could also be

invited to present their work at the seminar. This will enhance the Centre's endeavour to be a European centre for transportation research and networking.

Information Transfer, Innovation, and Commercialization

As the results obtained from the research activities in the Centre will support the transport planning, and the development of policy and regulations, the innovative research at the CTS will provide tools for the public authorities. The Centre could commercialize its models and method development in different application areas to support the public authorities and regulators.

Contributions to University Education

CTS activities and income will enable the academic departments to appoint new academic staff members with tenure track, which is commendable. The results of research will inform teaching and generate new dissertation topics for Masters and PhD students, which will strengthen academic standing and international reputation of the partner universities of the CTS and hence, graduates from the CTS will become more attractive to institutions. This will generate more students wishing to join CTS activities.

PhD students interviewed by the evaluation team expressed their satisfaction with the supervision and guidance received. They have benefitted from seminars and workshops organised by the CTS and have had opportunities to meet fellow researchers, practitioners and decision makers of high competence. However and as mentioned above, seminars where PhD students present their work should be organised regularly.

Recruiting and Developing People of International Competence and Experience

Senior research personnel are recruited from CTS partners and many of them also have experience from working in public organizations and/or private companies. The International Scientific Board of the Centre, in their evaluation of research at CTS in November, 2009, noted that the junior researchers and PhD students at CTS were of very high quality. Students from abroad have been recruited and seemed very satisfied with working in CTS.

CTS has a Guest researcher/professor programme within which distinguished researchers/professors can be employed at the Centre for a limited period of time. Within this programme CTS has been able to engage several renowned guest researchers/professors who clearly have contributed to the inflow of new ideas and methods and also must have contributed to international awareness of CTS. This is a very commendable activity.

Mobility of Personnel between University, Industry and Public Organizations

Strong interaction was evident on the project planning and implementation levels between the different partner organizations doing research. Many of the researchers have been working both at WSP, at VTI and/or at KTH before joining CTS.

Contacts between PhD students and organizations outside University have mainly taken place through seminars and workshops; none of those interviewed had been working with CTS partners except for their own department for any period of time. Bilateral contacts with external financiers of projects seem to take place mainly through senior researchers. Most of the students were primarily interested in continuing academic research after obtaining their degrees; interest in moving to private companies was not very evident. It seems that more attention should be paid to improving direct contacts between students and CTS partners.

Equality of Opportunity; Gender Perspective

While men outnumber women in the Board of Directors in the Management group and among the researchers at KTH, the situation is the other way around at other partners. There is no indication that career opportunities would differ between men and women and the share of women at all levels in CTS has been gradually increasing. Even though equality by no means is a problem at the Centre, we suggest to the Centre's leadership to keep a close eye on the issue with the intent of fostering it.

1.5 Scientific programme

Research Area and Competence Profile

CTS endeavours to produce research results of world class qualities that are publishable in prestigious scientific journals. To achieve this, CTS builds on its current competence and strives to generate new competence through research.

The focus of the research consists of six areas that reflect the competence of CTS and are in line with trends in international transportation research. Furthermore, in each of the six areas there is at least one PhD student involved. The six focus areas are:

1 Transport modeling
2 Transport economics and appraisals
3 Interaction between transport systems and the regional econom
4 Procurement and contracts
5 Road pricing
6 Greenhouse gas abatement in the transport sector

All these focus areas have both long and short term objectives. For instance, in the short term the objectives are policy advice to public organizations and dissemination of research findings from all the areas of research. In the long term the objectives are to develop tools and models that can be used for policy making. It is worthwhile to note that CTS does not define "sustainable transport" as its own focus area, but asserts that research should include sustainability, equity/fairness and efficiency perspectives wherever applicable. This is a commendable stance taken by the Centre since sustainability must apply to all areas of research and should not be regarded as a "stand-alone" topic.

Of special importance to note is that the six focus areas reflect well the needs of public transport authorities in terms of tools for assessing different transportation policies - this is covered by transport modeling, transportation economics and transport system and regional economy, the need to understand and improve procurement and contracting in the transport sector, the need to understand and disseminate the impact of congestion charging as a policy instrument for cities with congestion and to be open for other research areas that may arise any time.

Within the six focus areas there are a total of more than 120 small different projects started since CTS began. These fit nicely into one or the other of the six focus areas.

CTS collaborates with practitioners as a means of disseminating research results and raising new research questions. This is done by means of arranging mini-seminars, conference lectures and collaborative projects. This is an equally important task and should therefore count as production at CTS.

CTS has also built an international research environment with guest researcher programme and formal collaboration with several European research centers such as ITS-Leeds.

The competence profile of CTS maps well to its research area. In each of these focus areas there is at least one researcher at a senior level specializing in that area. Furthermore, most of the partners also have competences that can easily be drawn in should the need arise. An important aspect of the competence profile of CTS is that while modeling and economics are at the core, the profile is multidisciplinary

It is highly commendable that CTS focuses on so useful research areas and that it has acquired such a high competence profile.

People, Facilities, Critical Size

The staff members at CTS are highly qualified and internationally merited in their area of specialization. This is evident from their list of publication and also from seminars/conferences where they have participated as invited speakers. That they have collaboration with top international transport study units and professors also attest to this.

Most of the research at CTS is carried out without any dedicated laboratories or field sites. One exception is the recently established collaboration with IBM, where IBM provides computers and dedicated software for large-scale database management.

CTS states that it is today well above a reasonable “critical size” in all their focus areas. The challenge now is for CTS to create synergies, collaborations and knowledge transfers out of these “critical masses”. Currently, a little more than a third of CTS projects are joint projects between several partners – almost a half if one-person projects are excluded.

Productivity and Technological Outcomes

For a centre of research like CTS, productivity is readily measured in terms of publications where prestigious journals count more. The number of publications per focus area, when adjusted for researchers who constitute CTS and not other partners gives a person-average of 3.5 papers per year during 2008-2009. Furthermore, many of these papers have been published in highly esteemed journals of transportation. Given that CTS has existed for only three years, this must be regarded as a tremendous performance and demonstrates that the CTS is highly competent in its area of research. Given that all that is researched is not necessarily published, this means that the performance of CTS is of very high quality. In fact, the Evaluation Team was advised that there are several research reports of publishable quality that have so far not been submitted for publication. The Centre should therefore make efforts to publish more of its material as this would be a valuable contribution to the international literature.

In addition to journal publications as an indicator for productivity, the Centre's researchers frequently get papers accepted for presentations at international conferences/seminars. Furthermore they get special invitation as speakers at conferences. Given that CTS frequently arranges mini-conferences and seminars aimed at disseminating research findings, the Centre must be regarded as a highly productive centre of research.

International Comparators and Collaborations

It may be too early to compare CTS to other international centers for transportation research since it is only three years old. However, the Centre's area of competence, research, personnel, number of students and and scientific production puts it close to the top ranked European institutes of transport studies such as ITS-Leeds.

CTS collaborates with ITS Leeds and EPFL Lausanne. A special networking programme was recently started with ITS Leeds where among other things researchers on the post-doc level from CTS will visit ITS-Leeds to try to jumpstart collaborative projects. In addition, many CTS researchers have extensive individual international networks. Although CTS could improve its networking, given the age of the Centre its level of international collaboration must be regarded as very good.

Overall Conclusion - Scientific Quality and Productivity

CTS demonstrates a very high scientific quality and a very high level of scientific production. Judging by these qualities, CTS is probably among the top transportation centers in Europe.

Overall Conclusion - Research Programme Relevance, Utilization and Commercialization

The research programme of CTS is highly relevant for users with transportation agencies as the main end users. The output from the research can directly be used by the end user who themselves are given opportunities to come with suggestions for further research topics.

1.6 Centre partners – companies, public service

Partner Group Profile and Needs

Of the seven partners of CTS, five conduct research (TLA and TOL at KTH, the Transport Economics division of VTI, JIBS, Transport Analysis, and WSP Analysis and Strategy), while two are solely financiers (the Swedish Transport Administration and the National Public Transport Agency). Thus, there is only one privately owned partner (WSP). The research programme is clearly well adjusted to fulfil needs of these partners, as evident from the focus areas and, in particular, from the very large number of small projects that have been initiated by specific needs formulated by the partners. Partnership has not changed since the start-up of CTS. Adding partners has apparently so far not been seriously considered by CTS Board. Indeed, it was stated by Board members that this issue had not been much discussed because it had been thought more important to consolidate the ongoing activities during stage 1.

While this is a noteworthy argument, the evaluators nevertheless find that the inclusion of only a single privately owned consultant firm, which moreover seems to have had long-standing relationships with CTS researchers already before the start-up of CTS, must be considered too narrow. We believe that the general appreciation of CTS as a research organisation, the research programme and the long-term financial base of CTS would all benefit from a controlled and selective broadening of the partnership towards more members from the private sector.

Partner Participation in Innovation and Technology Translation; Benefits to Society

All partners of CTS have representatives on the Board and are thus directly engaged in planning and decisions on projects. Many of the small projects are initiated by partner needs and decided upon more or less ad hoc; the results of such project are obviously directly transferred to the partners and thus links project results to the decision-making and planning activities of the partners. In addition, CTS has initiated both external and internal seminar series; CTS researchers participate in work group with public authorities and demonstrably have an influence over several policy decisions in the public transport sector. Efficient transfer of research results into practical application to the benefit of public organisations and society in general seems to be one of the real strengths of CTS.

Innovation in terms of new technological processes and products is not expected to result from the type of research conducted by CTS. However, we were told that plans are being discussed for integrating/coordinating research at KTH/TLA and KTH/TOL with departments directly engaged in transport technologies at KTH. This interesting development would clearly imply a closer connection between the “software” produced by CTS and the consequences and limitations put by existing and future transport technologies.

1.7 Financial Management

Financial report for stage 1

The written report to the evaluators indicates that CTS has been very successful in obtaining adequate financing of their research. As a matter of fact, the evaluators were informed that a limiting factor for expansion is not so much to obtain new projects as to find competent personnel to carry them through. Most of the resources allocated can be rather freely distributed between the different focus areas according to decisions taken by the Board. In this respect the situation of CTS seems to be unusually advantageous by offering the possibility of accommodative financial management. However, the situation also emphasizes the need for a coherent and well-defined strategy that defines how different focus areas should be developed and well-defined procedures of adopting new projects.

The actual way resources – in cash and in kind – are actually distributed between those partners conducting research was difficult to discern from the report but became reasonably clear during the evaluation. This should be more clearly presented in forthcoming reports.

During discussions it also became clear that proposals for every project, in spite of their very large number, is evaluated with respect to quality and relevance of topic on several levels, from the management group and research coordinators up to decisions by the Board and in relation to the focus area of the centre. However, the report only gave a running list of resources allocated to each project and a separate list of person-years spent within them without any specification of how much time each person spent on the project or, indeed, within CTS as a whole. It was therefore not possible for the evaluators to assess how much time the 63 researchers and 19 PhD students reported to be working with CTS had actually spent on work within the Centre. This information would have been important for assessment of the degree of commitment of research staff at the partners to CTS. Thus, the evaluators suggest that the Centre improve its system of reporting its accounts.

Non-centre funds supporting related research

About 22 % of the resources available to CTS in the period 2007-2010 were external, i.e. they were obtained in addition to the funds allocated through the agreement between CTS partners and VINNOVA. The external resources were mainly project grants from different sources and only a small percentage could be characterised as pure contract research. Mainly, the projects were designed to result in publications in scientific journals. Broadening the partnership towards more privately owned organizations would probably imply that there should also be a readiness to take on a higher proportion of contract research. It should be noted that this is often an important way to transmit not only specific research results produced within the contract, but general knowledge developed at CTS into practical applications.

1.8 Recommendations to Strengthen the CTS

It is the opinion of the evaluators that the startup phase of CTS has been very successfully managed. In particular, we are impressed by the way the Centre management and Board have been able to bring together several departments and research institutes with different research agenda so that a well functioning and sustainable unit has been formed.

The evaluation team's recommendations are:

- In order to be more inclusive in its mission to be a center of research in areas of future interest to Swedish transport policy, CTS should strive to increase the number of members representing private research and consultancy providers.
- The Centre should formulate a more cohesive research strategy and a more distinct way of allocating projects to the different focus areas.
- To be complete as a centre for transport research, CTS should integrate more aviation and marine related projects into its research profile.
- The Centre should endeavour to organize more workshops in which students from different projects report their research progress to each other, preferably organized by the students themselves.
- Attention should be given to promoting contacts between PhD students and research organizations/consultant companies that support their projects.
- In order to improve interactions between the Board and Centre staff, a representative of the research staff at CTS should be appointed as an observer at Board meetings.

1.9 Recommendations to VINNOVA

In supporting CTS, VINNOVA has been instrumental in catalysing a research center that has focused on an important area of Swedish economy, where such a centre was lacking. The Centre so initiated has started up very promisingly. There is, however, room for improvement, as detailed in the recommendations above. The major recommendation for VINNOVA is:

- In the preparation for the next evaluation, VINNOVA should ensure that the financial status and project organization of the Centre are reported in a more transparent way, as detailed in the Guidelines for evaluation supplied by VINNOVA.

Stockholm, 15 June 2010

Atilla Incecik *Per Stenius* *James Odeck*

2 Lighthouse

Chalmers University of Technology, Göteborg
A Competence Research Centre with funding from VINNOVA

2.1 Introduction

On June 17, 2010 the Centre Director Anders Marby, the Chairman of the Board, Håkan Friberg, industry partners, university representatives, researchers and graduate students had meetings with the evaluation team at the Lindholmen campus of Chalmers University of Technology. The experts of the evaluation team, Michael vom Baur, Atilla Incecik (scientific experts) and Per Stenius (generalist, chair), addressed matters concerning research strategy, projects, progress organization and management, finance, interaction between industry partners and the university, student recruitment and educational activities. We thank all members of the Centre and the VINNOVA team for their efforts in providing information and facilities for the evaluation.

2.2 Vision, Mission, Strategy, and Success Criteria

Vision, Mission, Long-term Strategy and plans for development

The Mission of the Centre is "to contribute to a clean and safe globalization through the communication of new knowledge retrieved from interdisciplinary ways of working". The Vision the Centre is that it intends to become "a natural beacon for research projects, education efforts and innovative activities within the Maritime sector".

As it was explained during the evaluation interviews, a strong motivation of the founding industry partners, represented through the Swedish Shipowner's Association, to enter a long term financial commitment (10 years) was also the intention to establish a holistic view on commercial and technical aspects of academic research and education in shipping.

To enable fulfilling these objectives, goals and strategies were formulated in an Action Plan, which was revised latest in Feb 2008.

Success Compared to Success Criteria

The evaluated period extends from the inauguration of Lighthouse in Dec 2006 until June 2010 and includes the first financing phase from VINNOVA. It has to be considered as the start-up period, during which staff and structures of the Centre should be established and certain developments should be kicked off and put on track.

Since no definition of success criteria for this first phase were to be found in the evaluation documents, the evaluators have used the objectives for a 10 year perspective, as stated in the Action Plan, Chapter 1.3. As evaluators we have compared the actually

evaluated development against a progress level that in our opinion could be reasonably expected.

In general terms the actual development status do, indeed, fulfill the expectations. However, some areas could already have further progressed further. These areas are

- Interdisciplinary work in the PhD topics
- International R&D networking, cooperation and attractiveness for international clients / partners
- Strategic cooperation with other (national and international) R&D actors
- Establishment of an idea generation / project acquisition process and platform, for strengthening of the financial base

During the interviews several examples were presented of how the existence of Lighthouse has introduced new or contributed to enhancement of existing research activities, e.g. the establishment of new working areas "Environment", "Human Factors" and "Transport Logistics (commercial)". The evaluators acknowledge that, in particular, the representatives of the industry partners were very satisfied with the development so far.

During the interviews Lighthouse team leaders and Management staff confirmed the necessity to accelerate building the identity of the Centre and to strengthen the cohesion between related expertise fields. The evaluators expressed their concern that the allocation of scientists working in the same or almost the same discipline (e.g. hydrodynamics/sea-keeping/propulsion) to different theme areas may lead to a lack of expertise cohesion and daily exchange of experiences and thus also to redundancies and a less efficient use of research facilities. In the worst case, if not properly and proactively coordinated this may endanger attainment of critical mass for system expertise e.g. in ship design, safety and transport logistics, which is communicated as an important capability of Lighthouse. Centre scientists acknowledged these concerns and felt confident to have implemented the appropriate means of coordination.

2.3 Organization and Management of the Centre

The Board of Directors

The Board has 11 regular and 2 additional members, which are appointed by the partner organisations (Swedish Shipowners' Association, SRF; Chalmers University, SMT; Gothenburg University, SBEL, Swedish Maritime Administration and Västra Götalandsregionen). Six Board members are from industry. The responsibilities of the Board, which meets at least four times a year, include approving the status reports and the accounts of the Centre's projects, deciding upon operating and communication plans and budget, and the election of members of an Industry Council.

The evaluation discussion showed that the Directors, who are senior executives in their own institutions, were fully committed to the successful realization of Lighthouse’s

long term vision, mission, and aims. Judging from the success of the Lighthouse so far the Board has been able to provide valuable high level support and add additional credibility to the Centre’s activities.

During the evaluation interview it was stated by the Lighthouse Director, that presently the Centre still does not have significant amounts of the project budget under it's own administration, since most of the projects are legally and financially directly linked to SMT and SBEL

Centre director

The Director' role is primarily to coordinate between the Lighthouse partners, while the coordination and management of research is the responsibility of SMT and SBEL (see above).

In this context the evaluation meeting discussed how a potential conflict to the disadvantage of Lighthouse regarding acquisition of projects/funding and/or use of university resources could be handled. It was acknowledged that there might indeed occur potential conflicts of interest, for which an appropriate code of conduct should be developed (in particular, if further partners should join). However, presently the Centre's research partners have, jointly and individually, a strong interest in the success of Lighthouse and are jointly forming the Management Group. This may facilitate finding solutions when needed.

Management Team Structure and Performance

The Management Group consists of the Centre Director (Chairman), the Scientific Coordinator of SBEL and the Head of Department SMT. The Management Group meets at least ten times a year and its responsibility includes follow up of the Action and Communication Plan, implementation of Board decisions and decisions regarding research projects.

Scientifically based decisions about commencement of new research work is done by the Scientific Council, consisting of the Centre Director (Chairman) and senior scientific leaders of Lighthouse (actually, the leaders of the five “xxx.ship" theme areas as well as the Lighthouse Research Coordinator). The Scientific Council meets at least 4 times a year and may be supplemented by external scientists. It responsibilities include decision (scientific based) and follow up of projects and the graduate school network.

International Scientific Advisory Board's Role

An International Scientific Advisory Board has not yet been established. Evaluation and advice on the scientific level of research by international expertise is essential to ascertain the international recognition of Lighthouse. The evaluators stress the necessity to appoint and utilise the capabilities of an International Advisory Board soonest.

2.4 Internal and external communication

Processes for Idea Generation

Presently new project ideas can be initiated by a researcher, a research coordinator, members of Management Group, Board of Directors or partners. Furthermore "Reference Groups" for each thematic area have been mentioned during the interviews, comprising of outside individuals mainly from industry, who have been identified as being supportive.

A process for idea generation and evaluation of project proposals is described in the Evaluation Report. As it was stated during the interview, for the time being a "knowledge map" and project criteria are defined project by project. The evaluators recommend to provide this on a more general and standardized basis.

There is a plan to create a "Project Arena" in the second phase of the Lighthouse financing, which should enhance the idea generation and project acquisition from industry and other partners. It is the intention of the Lighthouse, that such platform would also include further (local and national) research partners (e.g. SSPA, KTH, CTS, etc). The present status of the "Arena" is still the general role and rule discussions. The evaluators recommend speeding up of this process, which is important also to create more possibilities to strengthen the financial basis of Lighthouse by third party research funds.

Project Management

Research projects at Lighthouse are managed by theme area leaders belonging to the academic staff of SMT or SBEL. We advise that regular interdisciplinary project status meetings should be arrange, in addition to progress reports to be submitted for feedback and monitoring by the Management Group.

Communication within Centre

Communication within Lighthouse appears to be sufficient through interproject information exchange and PhD horizontal courses and activities. However, it could certainly be enhanced by more regular organized appropriate exchange opportunities and to facilitate contacts between researchers working in the same discipline but within different theme areas, as discussed above.

Information Transfer, Innovation, and Commercialization

Information transfer regarding the research strategy, the actual research topic portfolio and recent results is organized mainly by the thematic areas, which each arrange one "Thematic Day" per annum, which is open for the public. The statistics of participation in these events is not described in the evaluation report, but according to statements during the interviews the average participations seems to be 50-60, of which approx 50% are not researchers. The Thematic Days are held in English.

After a Thematic Day a newsletter is issued, which normally describes the main topics in terms understandable for "non-exerts " but no results in detail, as well as the relevant Lighthouse contact information. These newsletters can thus be understood as invitations to interested parties to contact Lighthouse.

A new website, also acting as dissemination platform, was put online on the day of the evaluation interview.

There no experiences with commercialization reported yet. It is understood that eventual IP rights remain with the researchers if not otherwise decided in certain projects.

Contributions to University Education

Lighthouse has contributed to the education of PhD students at the universities through the graduate school network, including also joint interdisciplinary/cross-cutting courses for all PhD students. Lighthouse (in particular through VINNOVA funding) also provides funds for financing PhD grants (actual estimate: for approx. 50-70% of all PhD candidates).

Lighthouse also provides contribution to master students by relevant thesis opportunities and support. This has been instrumental in significantly enhancing the interest of new students in topics related to shipping, which can be seen as a very important contribution of Lighthouse.

2.5 Personnel of High Competence

Recruiting and Developing People of International Competence and Experience

The professors at the participating departments from Chalmers and GU are well-established scientists within their research areas, with international recognition and networks. The theme leaders represent expertise in shipping but also bring in experience from other disciplines, such as transport engineering, environmental technology and others. This is a commendable approach. It should be noted, however, that so far the contacts of Lighthouse with international expertise has been very limited, which is a matter of some concern. Lighthouse board management states that this issue will be addressed in the near future and the evaluators can only recommend that this be implemented without delay.

Mobility of Personnel between University and Industry

Several of the theme leaders have industrial experience and this was also the case for some of the PhD students interviewed during the hearing. Of these students, three out of eight seemed ready to move into industry after finishing their studies.

Within ongoing projects, contact between students and industry (with the exception of those directly financed by industry) apparently so far have mainly taken place through presentations at Lighthouse seminars. According to the SWOT analysis given in the

Evaluation report, forms for cooperation with all stakeholders are still under development and it is not clear to companies how they can utilize Lighthouse.

Increasing the direct contact between researchers and industry, e.g. by contact persons at the industries, project-specific reference groups and visits by students would be some means by which these problems could be alleviated. We note that strong efforts are made to create easily accessible in formation channels through the Internet, but these cannot in the long run fully replace direct personal contacts between researchers and those industries directly concerned with application of the results.

Equality of Opportunity; Gender Perspective

There are no female members of the Board of Directors or the Management group of Lighthouse and department leadership at Chalmers and GU is also dominantly male. With respect to theme leaders and graduate students the situation is better balanced. There is no indication that career opportunities would differ between men and women but there is clearly room for increasing the share of women engaged in Lighthouse leadership and research. We suggest to the Centre's leadership to keep a close eye on the issue with the intent of fostering it.

2.6 Scientific programme

Research Area and Competence Profile

Lighthouse aims at carrying out world class research and producing high quality output, thereby contributing to an innovative and highly competitive Swedish Shipping Industry. The research in Lighthouse is divided into five thematic areas: *Business Ship* (international trade, maritime law, logistics and regulation), *Cargo Ship* (design, seakeeping, structural analysis, and load handling equipment), *Eco Ship* (propulsion, energy efficiency, energy management and emissions), *Ergo Ship* (Human Factors in Shipping) and *Safe Ship* (Maritime Safety and Security).

The focus of the research area reflects the competence of the academic staff at the Lighthouse, SMT and SBEL and is in line with trends in international research concerning marine business and logistics, structural analysis, propulsion, energy management, emissions, human factors, maritime safety and security. Academic staff of Lighthouse belongs to SMT or SBEL.

Especially noteworthy is that the five thematic research areas of focus reflect well the needs of Swedish shipping industry in terms of achieving sustained and improved shipping business; improved hydrodynamic, structural and ergonomic design and safer and environmentally friendly shipping. These topics will all contribute to a highly competitive Swedish shipping industry and to a renowned centre of excellence for research and education in shipping, marine business and marine technology.

Within the five focus areas there are a total of 100 researchers, teachers and PhD students carrying out 49 projects.

The competence profile of the Centre maps well to its research area. In each of the five focus areas; there is at least one researcher at a senior level specializing in that area. The location of the theme areas at SMT and SBEL implies that these researchers are offered the possibility of extensive contacts with research on topics relate to, but outside Lighthouse-funded research

The Lighthouse Centre generates new research areas through meetings of 'Reference Groups' at the 'Theme Days' to which representatives from the Swedish shipping industry, academic staff, PhD students and the community members are invited to attend. The leaders of the thematic areas are responsible for arranging the meetings of the Reference Groups as well as selecting and developing new research areas.

As already noted above, is recommended that redundancies of research in different theme areas when carrying out tasks related to system engineering such as ship design, safety and logistics should be avoided by ensuring coordination and cohesion of expertise in different disciplines

The Centre will shortly form an International Scientific Advisory Board. The Board will meet at least once a year to discuss the progress of research at the Centre with the five theme leaders and to assist with the formulation of research strategy. It is recommended that working contacts with appropriate international research centers and institutions are established.

It is highly commendable that the Centre focuses on so useful research areas and that it has acquired such a high competence profile.

People, Facilities, Critical Size

The academic staff at the Centre is highly qualified and most of them are internationally recognized in their area of specialization. This is evident from their list of publication and also from seminars/conferences

Funding from Swedish Shipowner's Association made it possible to establish new research groups in the following areas:

- Maritime Environment at Chalmers University
- Human Factors at Chalmers University
- Maritime Logistics and Transport Management at the School of Business, Economic and Law, Gothenburg University.

Most of the research at Lighthouse is carried out without any dedicated laboratories or field sites. However two Bridge Simulators and Cargo Operations Studio are available to support research.

Lighthouse has reasonable size of academic staff and researchers in most of their focus areas. The challenge now is to create synergies, collaborations and knowledge transfers between the groups working in different thematic areas. It is recommended that multidisciplinary PhD projects be fostered through increased project-level contacts

between PhD students already in the early stages of their works and by increased contacts and cooperation between the different theme areas in general.

Productivity and Technological Outcomes

For a centre of research like Lighthouse, productivity is readily measured in terms of publications where prestigious journals count more. Whilst the Centre's research output has been published in international journals, conferences and workshops the Centre should make effort to publish more of its material in international journals as this would be a valuable contribution to the international literature and would help to establish the centre as an international centre of excellence.

In addition to journal and conference publications as an indicator for productivity, the Centre also publishes summary of its research activities regularly in their Newsletters.

International Comparators and Collaborations

It may be too early to compare the Centre to any other international centers for the integrated maritime shipping and marine technology research since the Centre is only four years old. However, the Centre's areas of competence and the caliber of the Lighthouse academic staff may soon put the Centre amongst the top in Europe.

It is recommended that the scientific base and knowledge base be broadened by establishing institutional relations with SSPA, UTC, CTS and other relevant research organizations

Some Ligthouse researchers have established personal research collaboration internationally with NTNU (Trondheim, DTU (Lyngby), TU (Delft), Strathclyde University (Glasgow). Academic staff at the Centre has extensive individual international networks.

Overall Conclusion - Scientific Quality and Productivity

The Centre demonstrates a high scientific quality and a high level of scientific production. Judging by these qualities, the Centre has the potential to become probably among the top maritime shipping and marine technology centers in Europe.

Overall Conclusion - Research Programme Relevance, Utilization and Commercialization

The research programmes at LIGHTHOUSE Centre are highly relevant for the Swedish and European Shipping Industry. The output from the research can directly be used by the end user who themselves are given opportunities to come with suggestions for further research.

2.7 Centre partners – companies, public service

Partner Group Profile and Needs

Lighthouse was initiated as a result of the explicitly expressed need of the Shipowners to revive Swedish academic education and research in the shipping area, which had been in decline for several years. Thus, contribution from the shipping industry through creation of Lighthouse has in a decisive manner influenced the development of shipping and marine technology as one of the clusters of exceptional research within the Transportation Area of Advance at Chalmers. The contribution also has made possible strong reinforcement of maritime research and education at SBEL. During the evaluation, shipping industry representatives repeatedly stated their satisfaction with the way the Lighthouse initiative has resulted in increased education of masters and doctoral students specializing in the shipping area and research projects. The evaluators conclude that Lighthouse is successfully fulfilling a real need expressed by Swedish shipowners.

Partner Participation in Innovation and Technology Translation, Commercialization

Results are communicated to partners through seminars, reports etc. as described above. Partners participate in project planning and follow-up through the reference groups of each theme area. A few projects are financed by industries outside the partner agreement. So far, there seems to be little contract research, direct industrial contacts or exchange of researchers between industry and university resulting from research results/innovations created in Lighthouse projects. One expects such activities to increase with increasing consolidation of Lighthouse research.

2.8 Financial Management

Financial report for stage 1

Lighthouse is funded by cash contributions from Swedish Shipowner's association, VINNOVA, region Västra Götaland and the Swedish Maritime association, in total about 22 MSEK/y. These contributions are used to finance administration of Lighthouse and theme leaders and are allocated to Chalmers and GU in the ratio 7:3, i.e. 70 % is funding research in technological and 30 % is funding research in economic and legal sciences. The contribution from VINNOVA is allocated to five full-time and two half-time PhD candidates.

In addition to these funds, there are very substantial in-kind contributions from both universities in terms of facilities, student supervision and teachers in the graduate school. It was stated at the evaluation that these contributions amount to several times the cash contributions, but they were not detailed in the financial report and hence the actual distribution of resources between different research projects, themes and education could not be assessed. This situation should be improved in coming reports.

Non-centre funds supporting related research

Lighthouse funding is integrated with funding of other research in the shipping area at both GU and Chalmers. Thus, research within Lighthouse projects is heavily dependent on the resources offered by different technological and economical disciplines at the universities. However, the financial report gave no estimates of the extent of this support, based on what the evaluators were told by university representatives, we can only conclude that clearly very substantial research in areas related to Lighthouse activities takes place at both universities.

2.9 Recommendations to Strengthen Lighthouse

There is no doubt the creation of Lighthouse has been of great importance in fostering the revival of Swedish academic education and research in the shipping area. This revival is still developing but Lighthouse is clearly on the track to becoming an internationally recognized center for high-level education and research.

The evaluation team's recommendations are:

- Multidisciplinary of PhD projects should be fostered through increased project-level contacts between PhD students already in the early stages of their work and by increased contacts and cooperation between the different theme areas in general.
- The scientific base and knowledge base should be extended by establishing institutional relations with SSPA, Rolls Royce, UTC, KTH/CTS and other relevant research organizations in order to exploit the evident opportunities to increase Lighthouse’s importance as a center of excellence of international renown.
- An international scientific board should be appointed and asked to give advice to Lighthouse researchers through on-site visits as soon as possible.
- Working contacts with appropriate international research centers and institutions, e.g. by using the opportunity offered by the technology platform Waterborne, should be established.
- A structured industrial project acquisition process should be established by promoting the development of the planned “Project Arena” as soon as possible.
- Redundancies of research in different theme areas when carrying out tasks related to system engineering such as ship design, safety and logistics should be avoided by ensuring coordination and cohesion of expertise in different disciplines. Cohesion of expertise is also mandatory for reaching and maintaining critical mass for the above-mentioned system engineering and research tasks.
- In order to ensure that projects are in line with overall Lighthouse strategy for development, the way decisions of project are taken, from project idea to final decision on scope, size and timetable of the project, should be standardized over the theme areas.
- The commercial drivers of technical development should be improved by close cooperation between the respective commercial and technical disciplines for themes of Lighthouse, for example logistics and transport.

- The ambitions in marine engineering systems as well as in offshore engineering and renewables (windpower) at sea research need to be expanded. This should be properly reflected by the Centre's publications and marketing.
- Research students should endeavour to increase the number of articles published in prestigious scientific journals.
- The in kind contributions from GU and CTH to Lighthouse should be included in future financial reports.

Gothenburg, 17 June 2010

Michael vom Baur *Atilla Incecik* *Per Stenius*

Appendix A:
Guidelines for the evaluation of CTS

1. Background

1.1. The Centre background

This document constitutes the guidelines for the evaluation of the competence centre CTS.

CTS is a Swedish competence research centre in the transport analysing and modelling sector. The base for the cooperation is formed by The Royal Institute of Technology (KTH), Swedish National Road and Transport Research Institute (VTI), WSP Analysis and Strategy, Jönköping International Business School (JIBS), the Swedish Road Administration, the Swedish rail administration, Swedish Institute for Transport and Communications Analysis (SIKA) and National Public Transport Agency.

This is the first time an initiative in the transport policy sector in Sweden has developed into a creation of a competence centre.

The CTS vision is to create a platform for transport policy research, and in harmony with sustainable development in the Swedish transport policy sector and a multidisciplinary collaboration, be the first choice for transport policy research and innovation as well as for education and in-service nationally and internationally.

The CTS mission is to communicate new competence in areas that is of future interest to Swedish transport policy.

1.2. Evaluation background

The inauguration of CTS took place on October 1th 2007. CTS is intended to run for up to 10 years. A substantial part of the first three years is expected to be devoted to build-up and development of the Centre. The parties of the Centre are universities, institute, consulting firm and public services. The parties contribute jointly to the Centre's research programme, financially or in the form of active work. Their collaboration and the financing are defined in different contracts.

VINNOVA started financing CTS in 2007 with the intention to continue over a 10 years period. During the initial three years and tree months, called Stage 1, VINNOVA covers up to SEK 22,75 million of the expenses, compared to the contribution of SEK 42 million from the other partners. After Stage 1 the VINNOVA annual contribution to the Centre is expected to continue to be about SEK 7 million per year.

The main purpose of this evaluation is to give input and advice with regard to the negotiations, decisions about Stage 2, the development of the Centre, and/or other

specific actions. The evaluation therefore has to be completed well in advance of the expiration of Stage 1 in December 2010.

2. The evaluation team

CTS will be evaluated by a team of international experts and experts from VINNOVA. One of the experts in the team will have the competence and the task to evaluate the Centre from a scientific point of view. Two persons in the team will have experience from similar programmes for university – industry research collaboration. These "generalist" experts will look at the functioning, organization and development of the Centre from a general point of view. The Centre has suggested four suitable scientific experts. From that list VINNOVA, has decided whom to invite.

3. The task of the evaluators

This first evaluation of CTS will be carried out after 2 ½ years. Its primary purpose is to evaluate the way the organisation of the Centre and the activities to establish the research programme in a Centre format have progressed. The evaluation will also comment on the progress of scientific research and industrial efforts, recognising that in this respect, however, it is too early to expect definite conclusive results. The evaluators will form an opinion concerning the approach and measures taken so far in order to assess the potential for long-term development towards a successful Competence Centre. Evaluators may offer suggestions for actions to enhance the prospects for Centre success.

As a basis for the evaluation of CTS, VINNOVA has formulated a number of success criteria (see Appendix 2). The Centre is asked to prepare reports according to the guidelines in Appendices 3 and 4.

The evaluation will be based on the success criteria.

The *scientific experts* in the evaluation team will review the Centre report sections:

1 Research area, Competence Profile and Critical Size
2 Centre Partners (from the point of view of research contribution)
3 Research Program

They will offer their perspective on the research in the context of the Vision, Mission and Strategy and financial aspects with respect to support of research agenda.

The *"generalist" experts* in the evaluation team will review the Centre report sections:

1 Organisation and Management of the Centre
2 Personnel of High Competence
3 Centre Partners (from the point of view of organisational efficiency and adaptation to the goal of the Centre)

They will also comment actions taken by VINNOVA both in terms of financial support and of more structural matters, the organisation of the Centre report and the site visit.

The evaluation team will submit a written report to VINNOVA. The report will roughly follow the structure of the review outlined above, and include conclusions and recommendations to the Centre and VINNOVA.

The evaluation team shall be unanimous in its conclusions and recommendations.

4. Organisation of the evaluation

The composition of the evaluation team is decided by VINNOVA. The evaluation team itself decides on the distribution of work among its members.

The basic documentation, essentially the Centre report to the evaluation team, from CTS to VINNOVA, will be distributed by VINNOVA to all members of the evaluation team not later than four weeks prior to the evaluation. The evaluation starts with an introductory meeting of the evaluation team in the evening the day before the interview and ends when the evaluation report is completed. The first draft of the evaluation report should be finished in the evening of the day the interview is performed.

The evaluation of CTS will be carried out on Thursday, June 15th, 2010.

The final evaluation report will be available not later than August 30th, 2010.

During the site visit the evaluation team should be given the opportunity to meet:

- The Director of the Centre
- The Chairman of the Centre Board of Directors
- Representatives from the industrial and public partners
- University staff incl. representatives from the Vice-Chancellor´s office
- Research leaders and/or program directors active within the Centre
- Doctoral students

VINNOVA staff will be present at the site visit and take part in the evaluation. The staff will also act as administrators and can add information during work sessions.

The evaluation will be divided into two sessions, one where the scientific experts meet parties from the Centre and one where the “generalist” experts together with the scientific experts meet parties from the Centre. During lunch break, i.e. between these two sessions, the evaluation team will also meet with up to 10 PhD students in the Centre.

5. Centre arrangements in connection to the evaluation

CTS is asked to propose 3-4 scientific experts for the evaluation and send the suggestions to VINNOVA not later than February 10th, 2010. It is important that the Centre can guarantee no conflict of interest with the proposed evaluators.

The basic documentation, in principle the Centre report to the evaluation team, will be distributed by VINNOVA to the members of the evaluation team not later than four weeks prior to the evaluation. The template that should be used is presented in Appendix 4.

Furthermore the Centre should:

- Book locations for the interview sessions
- Invite Centre representatives to the interview sessions
- Inform VINNOVA on the address to the location
- Arrange lunch for the evaluation team and the VINNOVA staff - with no Centre representatives present
- Arrange for a separate meeting of the evaluation team with PhD students during lunch coffee, preferably in the lunch location

Finally the Centre leader should review, with respect to facts only, the first draft of the evaluation report and report any correction to factual information in the draft to VINNOVA not later than June 30th, 2010. This first draft should be kept confidential.

6. Remuneration to the evaluators

VINNOVA will pay for all costs for evaluation team members including travels, accommodations etc. According to VINNOVA's standards for international evaluations, a remuneration of 2 400€ is associated to each member in the evaluation team for the evaluation of a specific Centre.

Appendix 1: Time Schedule for CTS Evaluation

May 7th, 2010 12.00 pm	The CTS Status Report is available at VINNOVA. The report should be sent to Per.Norman@VINNOVA.se .
May 11th, 2010	The CTS Status Report is distributed to the evaluators by VINNOVA.
June 14th, 2010 8.00 pm	Introductory meeting for the CTS evaluation team in Stockholm.
June 15th, 2010	Evaluation of CTS

09.00 – 11.00	CTS Scientific Expert Evaluation Session
11.00 – 12.15	Lunch meeting between Scientific and Generalist Evaluators
12.15 – 12.45	Meeting with up to 10 PhD students
12.45 – 13.00	Preparation for next session
13.00 – 15.00	Generalist Expert Evaluation Session
15.00 – 24.00	Work session for the Evaluation team

Appendix 2: Criteria for CTS

Vision: The vision of the Centre is to contribute to the creation of an efficient, equitable and sustainable transport system by improving the understanding of and knowledge about the transport system, its users and the interaction between the transport system and societal development.

Mission: The mission for the Centre is to conduct research that is both of high quality and applicable for practitioners, and also to ensure that research results and competence is put to practical use in the shaping of the transport system. This is summarised in the keywords for the Centre: *Brilliant, Relevant* and *Visible*.

The goals and strategies of CTS in 10 years time: The aim of the Centre is to

1 be an *internationally recognised* research environment
2 constitute a natural *meeting place* for researchers and practitioners
3 contribute to increasing the quality of *decision support* and *decision making* within the transport sector
4 raise the *competence level* within the transport sector in the longer term
5 increase and strengthen the *financial* base thus reaching a critical mass

Goal 1: CTS should be an internationally recognised research environment

Strategy: The Centre shall pursue research of high international quality. This should be materialized through e.g.:

- publications in international journals
- presentations at international conferences and seminars
- participation in national and international research networks
- memberships international editorial and conference committees

Goal 2: CTS should constitute a natural meeting place for researchers and practitioners

Strategy: The Centre shall be an interdisciplinary environment connecting people working at academic departments, consultancy firms, national and regional transport authorities as well as other stakeholders. This should be materialized through e.g.:

- organisation of and participation in conferences, seminars and meetings
- close cooperation between different parties in research projects
- recruitment of staff with different backgrounds
- exchange programs and/or temporarily shared office spaces

Goal 3: CTS should contribute to increasing the quality of decision support and decision making within the transport sector

Strategy: The Centre shall work to implement research results and to spread knowledge to the research community as well as to officials, politicians and the public. This should be materialized through e.g.:

- seminars, presentations and papers aimed for the different target groups
- expert support in strategic and complex public method and model development work
- support to public inquiries and other public operations
- participation in policy oriented cooperation at an European level
- spreading of insights and results from research to practitioners, decision makers and the public through articles in journals or newspapers, memorandums, reports etc

Goal 4: CTS should raise the competence level within the transport sector in the longer term

Strategy: The Centre shall engage in education of doctoral levels but also, to some extent, of graduate levels. The interdisciplinary environment at the Centre means new PhDs will be an attractive recruitment base due to a thorough knowledge about national and regional transport authorities and other stakeholders as well as a working network of connections.

Goal 5: CTS should increase and strengthen the *financial* base thus reaching a critical mass

Strategy: The Centre shall attract a long term increase of investments in its research and development activities in order to be a stable and respected player on the transport arena. This should be materialized through:

- basic grants from Vinnova and governmental organisations
- governmental funding through the programme TRENoP (Transport research environment with novel perspectives)
- external funding for specific projects from research financiers and branch organisations
- gradually more EU funding. First, however, a clear plan for how work with EU applications should be carried out needs to be established.

Appendix 3: Instructions for Centre Reports to the Evaluation Team

The reports will be forwarded to the evaluation team by VINNOVA. Guidelines for report contents and length are given below. The number of pages are indicative but *should not be exceeded.* Facts about the Centre are to be compiled in section 10. It is recommended that these data are being referred to in the text in other relevant sections so as to give context and appropriate emphasis to the data.

The requested financial statement is a way to monitor the set up of the centre. In particular, attention should be given to the following aspects: the sources of financing of the centre, the balance between in-kind and cash contribution from each participant, the way the financing from the Universities is organised, the kind of expenses that characterise the centre (salaries, infrastructure, etc), personnel receiving salaries from the centre (often a critical issue in IPR discussions), background of the personnel in the centre (does the centre attract people world-wide or locally), typical size of projects within the centre (what is a large and small project, how are projects economically built up), how aggressively has the centre been in its attempts to receive other funding, how does the centre take advantage of being a centre when applying for funds, etc.

0. Summary (1 page)

- Progress and prospects of the Centre, highlights, breakthroughs, etc.

1. Long-term Vision, Mission and Strategy (1 page)

- Provide a ten-year perspective on the Vision, Mission and Strategy of the Centre in the context of the Success Criteria's, see Appendix 2.

2. Organisation and Management of the Centre (3 pages)

- Describe the role and activities of the:
    - Board of Directors
    - Centre Director
    - Management Team
    - Scientific leadership
    - International Scientific Advisory Board.
- Describe the process of:
    - idea generation
    - idea development
    - project selection
    - project planning
    - project review
- What steps are taken to stimulate and promote innovation processes from ideas/results to products and services?
- Describe the status and role of the Centre vis-à-vis the:

    - Universities organisational units
    - Central administration
    - the Faculties
    - other Centres
- Internal and external communication
    - Stimulation and promotion of innovation processes from ideas/results to products and services
    - Internal communication between Centre personnel, courses, seminars etc.
    - Communication between Centre and industrial partners: courses, seminars, visits by personnel at industries and vice versa, transfer of ideas
- Describe measures taken to provide equality of opportunity, particularly but not only, from a gender perspective.
- Comment on things that work well and things that don't.

3. Research Area, Competence Profile and Critical Size (3 pages)

- Describe briefly the core competence of the Centre's research team both in terms of research competence, (specify particular strengths in research) and personnel.
- Describe the facilities the Centre has developed or plan to develop to support the program.
- Describe the personnel and facilities available to the Centre (through collaboration within or beyond the university) that contribute to establishing the identity and competence profile for the research of the Centre.
- State the position of the Centre in relation to internationally leading groups.
- Describe collaboration with external groups (national and international), in particular new collaborations instigated since establishing the Centre.
- Describe the value added being a Centre compared to other ways of research collaboration.
- Comment on the Centre with respect to "critical size".

4. Centre Partners - Companies and public service partners (3 pages)

- Describe for each partner:
    - their corporate profile (number of employees, main products, location of operations etc.)
    - how their business interests are aligned with the Centre research efforts
    - how they interact with the Centre (including planning, personnel and facilities)
- Concerning the overall strategy and considering the Centre as a whole:
    - describe the way in which key issues and strategies are identified by partners to stimulate needs-driven research
    - describe the mechanisms for innovation and translation of technology into new products, processes, and services

- what measures have been taken to achieve strong links and integration between academia and companies/public services, and among companies/public services

5. Research Program (5 pages)

- Provide an overview of the research program.
- Provide a brief description of the research projects (50-75 words each). In addition to basic science and methodology, describe the need the research addresses, the question to be answered and the technological objectives. State the size (estimated man-years), start-up time and duration of the project.
- Provide a summary statement concerning research productivity. (Particulars of research output are to be listed in the Appendices under Publications and Presentations Activity and International Activity.).
- Describe briefly to what extent there are other projects in the Centre's working environment that are not directly connected to the Centre but can be seen as supporting Centre activities.

6. Financial Report for Stage 1 (2 pages)

- Discuss any concern regarding financing matters.
- Describe existing sources of non-Centre funds supporting related research.

7. Personnel of High Competence (1 page)

- Describe the contribution of the Centre to university education (graduate and undergraduate): e.g. courses taught, seminars given, students supervised other than those already listed under research projects, etc.
- Measures taken to recruit, develop and keep people with leading international competence.
- Percentage of students associated with the Centre who's first degree is from:
  - another University than Chalmers or HGU
  - outside Sweden
- Measures taken to provide opportunities for students to travel or study abroad?

8. Plans for Development (1 page)

- Describe the plan for development of the Centre over the next three years (stage 2) in relation to the long-term objectives.

9. Further information (1 page)

- Please provide information of particular interest to the evaluation team that has not been covered in any other section of the guidelines.

10. Facts about the Centre

a *CV* in summary of the Centre Director

b *Centre Partners*
TABLE 1: List Centre Partners (Companies/public sector units), the name and position of the key contact)

c *Board of Directors*
TABLE 2: List the name, position, company, location of the members of the Board of Directors

d *Management Team*
TABLE 3: List the name, position in the University, role in the team for the persons in the Management Team

e *International Scientific Advisory Board*
TABLE 4: List the name, position, university/company, location for the members of the International Scientific Advisory Board

f *Research Program*
TABLE 5: Research Projects and Staff. For each project: project title, project leader, staff and student names, and person-years by year (include company and public sector personnel also). Persons spending less than 7% of their working time with the Centre need not to be listed.

g *Publication and Presentation Activity*
TABLE 6: List publications, patents, theses, posters, presentations, invited lectures, etc. Include work funded by VINNOVA. Also include other closely related work funded by other means, indicating that other funding was used by an asterisk*.

h *International Activities*
TABLE 7: List collaborations with international researchers, visits outside Sweden (conferences, seminars, university visits, etc.), and foreign visitors to the Centre. Include work funded by VINNOVA. Also include other closely related work funded by other means, indicating that other funding was used by an asterisk*.

i *Financial Reports* (please use the templates in Appendix 4 or in the attached Excel file “Financial Report for Stage 1”)
TABLE 8: Overall resources available
TABLE 9: Overall expenditures
TABLE 10: Research personnel
TABLE 11: Project expenditures
TABLE 12: Related research grants

Websites

Provide relevant websites for the Centre, the Universities, research partners, research collaborators

Appendix 4: Templates for the Financial Statements

VINN Excellence Centre:	
Berzelii Centre:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table T8: Overall resources available (cash and in kind)

This table should present the overall resources available (cash as well as in-kind) for center activities, one row for each financial source.

Affiliation	**Year 1**						**Year 2**						**Summary Stage 1**					
	Budget (kSEK)			**Outcome (kSEK)**			**Budget (kSEK)**			**Outcome (kSEK)**			**Budget (kSEK)**			**Outcome (kSEK)**		
	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total
VINNOVA																		
University																		
Industrial & Public Partners																		
Partner A																		
Partner B																		
Part…..																		
Sum																		

VINN Excellence Centre:	
Berzelii Centre:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table 9: Overall Expenditures

List all expenses for the centre at an aggregated level.

	Year 1						Year 2					
	Budget (kSEK)			Outcome (kSEK)			Budget (kSEK)			Outcome (kSEK)		
	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total
Salaries (from "Staff sheet")												
External services												
Equipment												
Material, running costs etc.												
Travel												
Other												
Overhead costs												
Sum												

	Summary Stage 1					
	Budget (kSEK)			Outcome (kSEK)		
	Cash	In kind	Total	Cash	In kind	Total
Salaries (from "Staff sheet")						
External services						
Equipment						
Material, running costs etc.						
Travel						
Other						
Overhead costs						
Sum						

VINN Excellence Center:	
Berzelii Center:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table 10: Research Personnel

List all personnel working in the centre. Preferably group them in order to use the information in other parts of the report

				Year 1						**Year 2**					
				Budget			**Outcome**			**Budget**			**Outcome**		
Name	**Affiliation (financing source)** Center / Univ / Partner	**University degrees** (year of degree, university)	**Category title, status / position** Prof / Res / PhD / Manager	**Degree of activity in the center** % of full time	**Cash contr.** kSEK	**In kind contr.** kSEK	**Degree of activity in the centre** % of full time	**Cash contr.** kSEK	**In kind contr.** kSEK	**Degree of activity in the center** % of full time	**Cash contr.** kSEK	**In kind contr.** kSEK	**Degree of activity in the center** % of full time	**Cash contr.** kSEK	**In kind contr.** kSEK

VINN Excellence Center:	
Berzelii Center:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table 11: Project expenditures

Follow up that resources have been used for learning activities and communication (5% of VINNOVA funding), list of projects and financial size

	Year 1						Year 2						Summary Stage 1					
	Budget (kSEK)			Outcome (kSEK)			Budget (kSEK)			Outcome (kSEK)			Budget (kSEK)			Outcome (kSEK)		
	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total
Management of center																		
Communication																		
Learning activities																		
Reserved for NEW PROJECTS																		
Projects (subprojects included)																		
Sum																		

VINN Excellence Center:	
Berzelii Center:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table 12: Related Research Grants

List grants granted, applied for and under preparation - project title, total amount applied for, duration of project, funding source, date of applicatin and any comment you might have

Project Title	Status	Total amount applied for	Duration of project	Funding source	Date of application	Comments
	Granted / Applied / Under preparation/ Rejected	kSEK				

Appendix B:
Guidelines for the evaluation of LIGHTHOUSE

1. Background

1.1. The Centre background

This document constitutes the guidelines for the evaluation of the competence centre LIGHTHOUSE.

LIGHTHOUSE is a cooperation of competence in the maritime sector. The base for the cooperation is formed by Chalmers University of Technology (Chalmers), School of Business, Economics and Law at the University of Gothenburg (HGU) and the Swedish Shipowners' Association.

This is the first time an initiative in the maritime sector in Sweden has developed into a creation of a competence centre.

The LIGHTHOUSE vision is to create a platform for maritime research, and in harmony with sustainable development in the Swedish maritime industry and a multidisciplinary collaboration, be the first choice for maritime research and innovation as well as for education and in-service nationally and internationally.

The LIGHTHOUSE mission is to communicate new competence in areas that is of future interest to the Swedish maritime industry.

1.2. Evaluation background

The inauguration of LIGHTHOUSE took place on December 7th 2006. The basic financing of LIGHTHOUSE is intended to run for up to 10 years. A substantial part of the first three years is expected to be devoted to build-up and development of the Centre. The parties of the Centre are universities, industrial companies and public services. The parties contribute jointly to the Centre's research programme, financially or in the form of active work. Their collaboration and the financing are defined in different contracts.

VINNOVA started financing LIGHTHOUSE in 2008 with the intention to continue over a 10 years period. During the initial three years, called Stage 1, VINNOVA covers up to SEK 21 million of the expenses, compared to the initial contribution of SEK 100 million from the Swedish Shipowners' Association during a 10 years period. Other public and industrial partners are also contributing to the expenses. After Stage 1 the VINNOVA annual contribution to the Centre is expected to continue to be about SEK 7 million per year.

The main purpose of this evaluation is to give input and advice with regard to the negotiations, decisions about Stage 2, the development of the Centre, and/or other specific actions. The evaluation therefore has to be completed well in advance of the expiration of Stage 1 in December 2010.

2. The evaluation team

LIGHTHOUSE will be evaluated by a team of international experts and experts from VINNOVA. Two of the experts in the team will have the competence and the task to evaluate the Centre from a scientific point of view. Two persons in the team will have experience from similar programmes for university – industry research collaboration. These “generalist” experts will look at the functioning, organization and development of the Centre from a general point of view. The Centre has suggested four suitable scientific experts. From that list VINNOVA, has decided whom to invite.

3. The task of the evaluators

This first evaluation of Lighthouse will be carried out after 3 ½ years. Its primary purpose is to evaluate the way the organisation of the Centre and the activities to establish the research programme in a Centre format have progressed. The evaluation will also comment on the progress of scientific research and industrial efforts, recognising that in this respect, however, it is too early to expect definite conclusive results. The evaluators will form an opinion concerning the approach and measures taken so far in order to assess the potential for long-term development towards a successful Competence Centre. Evaluators may offer suggestions for actions to enhance the prospects for Centre success.

As a basis for the evaluation of LIGHTHOUSE, VINNOVA has formulated a number of success criteria (see Appendix 2). The Centre is asked to prepare reports according to the guidelines in Appendices 3 and 4.

The evaluation will be based on the success criteria.

The *scientific experts* in the evaluation team will review the Centre report sections:

1 Research area, Competence Profile and Critical Size
2 Centre Partners (from the point of view of research contribution)
3 Research Program

They will offer their perspective on the research in the context of the Vision, Mission and Strategy and financial aspects with respect to support of research agenda.

The *"generalist" experts* in the evaluation team will review the Centre report sections:

1 Organisation and Management of the Centre
2 Personnel of High Competence

3 Centre Partners (from the point of view of organisational efficiency and adaptation to the goal of the Centre)
4 Financial Report for Stage 1

They will also comment actions taken by VINNOVA both in terms of financial support and of more structural matters, the organisation of the Centre report and the site visit.

The evaluation team will submit a written report to VINNOVA. The report will roughly follow the structure of the review outlined above, and include conclusions and recommendations to the Centre and VINNOVA.

The evaluation team shall be unanimous in its conclusions and recommendations.

4. Organisation of the evaluation

The composition of the evaluation team is decided by VINNOVA. The evaluation team itself decides on the distribution of work among its members.

The basic documentation, essentially the Centre report to the evaluation team, from LIGHTHOUSE to VINNOVA, will be distributed by VINNOVA to all members of the evaluation team not later than four weeks prior to the evaluation. The evaluation starts with an introductory meeting of the evaluation team in the evening the day before the interview and ends when the evaluation report is completed. The first draft of the evaluation report should be finished in the evening of the day the interview is performed.

The evaluation of LIGHTHOUSE will be carried out on Thursday, June 17th, 2010.

The final evaluation report will be available not later than August 9th, 2010.

During the site visit the evaluation team should be given the opportunity to meet:

- The Director of the Centre
- The Chairman of the Centre Board of Directors
- Representatives from the industrial and public partners
- University staff incl. representatives from the Vice-Chancellor´s office
- Research leaders and/or program directors active within the Centre
- Doctoral students

VINNOVA staff will be present at the site visit and take part in the evaluation. The staff will also act as administrators and can add information during work sessions.

The evaluation will be divided into two sessions, one where the scientific experts meet parties from the Centre and one where the “generalist” experts together with the scientific experts meet parties from the Centre. During lunch break, i.e. between these two sessions, the evaluation team will also meet with up to 10 PhD students in the Centre.

5. Centre arrangements in connection to the evaluation

LIGHTHOUSE is asked to propose 3-4 scientific experts for the evaluation and send the suggestions to VINNOVA not later than February 10th, 2010. It is important that the Centre can guarantee no conflict of interest with the proposed evaluators.

The basic documentation, in principle the Centre report to the evaluation team, will be distributed by VINNOVA to the members of the evaluation team not later than four weeks prior to the evaluation. The template that should be used is presented in Appendix 4.

Furthermore the Centre should:

- Book locations for the interview sessions
- Invite Centre representatives to the interview sessions
- Inform VINNOVA on the address to the location
- Arrange lunch for the evaluation team and the VINNOVA staff - with no Centre representatives present
- Arrange for a separate meeting of the evaluation team with PhD students during lunch coffee, preferably in the lunch location

Finally the Centre leader should review, with respect to facts only, the first draft of the evaluation report and report any correction to factual information in the draft to VINNOVA not later than June 30th, 2010. This first draft should be kept confidential.

6. Remuneration to the evaluators

VINNOVA will pay for all costs for evaluation team members including travels, accommodations etc. According to VINNOVA's standards for international evaluations, a remuneration of 1200€ is associated to each member in the evaluation team for the evaluation of a specific Centre.

Appendix 1: Time Schedule for CTS and LIGHTHOUSE Evaluations

May 7th, 2010 12.00 pm — *The LIGHTHOUSE Status Report is available at VINNOVA. The report should be sent to* per.ekberg@VINNOVA.se .

May 11th, 2010 — *The LIGHTHOUSE Status Report is distributed to the evaluators by VINNOVA.*

June 14th, 2010 8.00 pm — *Introductory meeting for the CTS evaluation team in Stockholm.*

June 15th, 2010 — *Evaluation of CTS*

- *09.00 – 11.00* — *CTS Scientific Expert Evaluation Session*
- *11.00 – 12.15* — *Lunch meeting between Scientific and Generalist Evaluators*
- *12.15 – 12.45* — *Meeting with up to 10 PhD students*
- *12.45 – 13.00* — *Preparation for next session*
- *13.00 – 15.00* — *Generalist Expert Evaluation Session*
- *15.00 – 24.00* — *Work session for the Evaluation team*

June 16th, 2010 — *Transport from Stockholm to Gothenburg*

June 16th, 2010 8.00 pm — *Introductory meeting for the LIGHTHOUSE evaluation team.*

June 17th, 2010 — *Evaluation of LIGHTHOUSE*

- *09.00 – 11.00* — *LIGHTHOUSE Scientific Expert Evaluation Session*
- *11.00 – 12.15* — *Lunch meeting between Scientific and Generalist Evaluators*
- *12.15 – 12.45* — *Meeting with up to 10 PhD students*
- *12.45 – 13.00* — *Preparation for next session*
- *13.00 – 15.00* — *Generalist Expert Evaluation Session*
- *15.00 – 24.00* — *Work session for the Evaluation team*

June 28th, 2010 — *Evaluation team report is sent to the LIGHTHOUSE Centre for control of facts.*

June 30th, 2010 — *Comments on facts are sent from the LIGHTHOUSE Centre to VINNOVA.*

August 9th, 2010 — *Final report is sent to the LIGHTHOUSE centre from VINNOVA.*

Appendix 2: Criteria for LIGHTHOUSE

The idea behind the start of LIGHTHOUSE was to create a national research centre in the maritime sector. There had been discussions for a long time to assemble industry, researchers and authorities to form a centre covering the whole sector. This **was made possible when the** Academy and the Shipowners´ Association decided to form LIGHTHOUSE.

After discussions with LIGHTHOUSE, VINNOVA has decided that the criteria for supporting LIGHTHOUSE will be based on the Action- and Communication plan dated 2008-02-08 (see separate document).

Appendix 3: Instructions for Centre Reports to the Evaluation Team

The reports will be forwarded to the evaluation team by VINNOVA. Guidelines for report contents and length are given below. The number of pages are indicative but *should not be exceeded.* Facts about the Centre are to be compiled in section 10. It is recommended that these data are being referred to in the text in other relevant sections so as to give context and appropriate emphasis to the data.

The requested financial statement is a way to monitor the set up of the centre. In particular, attention should be given to the following aspects: the sources of financing of the centre, the balance between in-kind and cash contribution from each participant, the way the financing from the Universities is organised, the kind of expenses that characterise the centre (salaries, infrastructure, etc), personnel receiving salaries from the centre (often a critical issue in IPR discussions), background of the personnel in the centre (does the centre attract people world-wide or locally), typical size of projects within the centre (what is a large and small project, how are projects economically built up), how aggressively has the centre been in its attempts to receive other funding, how does the centre take advantage of being a centre when applying for funds, etc.

0. Summary (1 page)

- Progress and prospects of the Centre, highlights, breakthroughs, etc.

1. Long-term Vision, Mission and Strategy (1 page)

- Provide a ten-year perspective on the Vision, Mission and Strategy of the Centre in the context of the Success Criteria's, see Appendix 2.

2. Organisation and Management of the Centre (3 pages)

- Describe the role and activities of the:
    - Board of Directors
    - Centre Director
    - Management Team
    - Scientific leadership
    - International Scientific Advisory Board.
- Describe the process of:
    - idea generation
    - idea development
    - project selection
    - project planning
    - project review
- What steps are taken to stimulate and promote innovation processes from ideas/results to products and services?
- Describe the status and role of the Centre vis-à-vis the:

    - Universities organisational units
    - Central administration
    - the Faculties
    - other Centres
- Internal and external communication
    - Stimulation and promotion of innovation processes from ideas/results to products and services
    - Internal communication between Centre personnel, courses, seminars etc.
    - Communication between Centre and industrial partners: courses, seminars, visits by personnel at industries and vice versa, transfer of ideas
- Describe measures taken to provide equality of opportunity, particularly but not only, from a gender perspective.
- Comment on things that work well and things that don't.

3. Research Area, Competence Profile and Critical Size (3 pages)

- Describe briefly the core competence of the Centre's research team both in terms of research competence, (specify particular strengths in research) and personnel.
- Describe the facilities the Centre has developed or plan to develop to support the program.
- Describe the personnel and facilities available to the Centre (through collaboration within or beyond the university) that contribute to establishing the identity and competence profile for the research of the Centre.
- State the position of the Centre in relation to internationally leading groups.
- Describe collaboration with external groups (national and international), in particular new collaborations instigated since establishing the Centre.
- Describe the value added being a Centre compared to other ways of research collaboration.
- Comment on the Centre with respect to "critical size".

4. Centre Partners - Companies and public service partners (3 pages)

- Describe for each partner:
    - their corporate profile (number of employees, main products, location of operations etc.)
    - how their business interests are aligned with the Centre research efforts
    - how they interact with the Centre (including planning, personnel and facilities)
- Concerning the overall strategy and considering the Centre as a whole:
    - describe the way in which key issues and strategies are identified by partners to stimulate needs-driven research
    - describe the mechanisms for innovation and translation of technology into new products, processes, and services

- what measures have been taken to achieve strong links and integration between academia and companies/public services, and among companies/public services

5. Research Program (5 pages)

- Provide an overview of the research program.
- Provide a brief description of the research projects (50-75 words each). In addition to basic science and methodology, describe the need the research addresses, the question to be answered and the technological objectives. State the size (estimated man-years), start-up time and duration of the project.
- Provide a summary statement concerning research productivity. (Particulars of research output are to be listed in the Appendices under Publications and Presentations Activity and International Activity.).
- Describe briefly to what extent there are other projects in the Centre's working environment that are not directly connected to the Centre but can be seen as supporting Centre activities.

6. Financial Report for Stage 1 (2 pages)

- Discuss any concern regarding financing matters.
- Describe existing sources of non-Centre funds supporting related research.

7. Personnel of High Competence (1 page)

- Describe the contribution of the Centre to university education (graduate and undergraduate): e.g. courses taught, seminars given, students supervised other than those already listed under research projects, etc.
- Measures taken to recruit, develop and keep people with leading international competence.
- Percentage of students associated with the Centre who's first degree is from:
  - another University than Chalmers or HGU
  - outside Sweden
- Measures taken to provide opportunities for students to travel or study abroad?

8. Plans for Development (1 page)

- Describe the plan for development of the Centre over the next three years (stage 2) in relation to the long-term objectives.

9. Further information (1 page)

- Please provide information of particular interest to the evaluation team that has not been covered in any other section of the guidelines.

10. Facts about the Centre

a *CV* in summary of the Centre Director

b *Centre Partners*
TABLE 1: List Centre Partners (Companies/public sector units), the name and position of the key contact)

c *Board of Directors*
TABLE 2: List the name, position, company, location of the members of the Board of Directors

d *Management Team*
TABLE 3: List the name, position in the University, role in the team for the persons in the Management Team

e *International Scientific Advisory Board*
TABLE 4: List the name, position, university/company, location for the members of the International Scientific Advisory Board

f *Research Program*
TABLE 5: Research Projects and Staff. For each project: project title, project leader, staff and student names, and person-years by year (include company and public sector personnel also). Persons spending less than 7% of their working time with the Centre need not to be listed.

g *Publication and Presentation Activity*
TABLE 6: List publications, patents, theses, posters, presentations, invited lectures, etc. Include work funded by VINNOVA. Also include other closely related work funded by other means, indicating that other funding was used by an asterisk*.

h *International Activities*
TABLE 7: List collaborations with international researchers, visits outside Sweden (conferences, seminars, university visits, etc.), and foreign visitors to the Centre. Include work funded by VINNOVA. Also include other closely related work funded by other means, indicating that other funding was used by an asterisk*.

i *Financial Reports* (please use the templates in Appendix 4 or in the attached Excel file “Financial Report for Stage 1”)
TABLE 8: Overall resources available
TABLE 9: Overall expenditures
TABLE 10: Research personnel
TABLE 11: Project expenditures
TABLE 12: Related research grants

Websites

Provide relevant websites for the Centre, the Universities, research partners, research collaborators

Appendix 4: Templates for the Financial Statements

VINN Excellence Centre:	
Berzelii Centre:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table T8: Overall resources available (cash and in kind)

This table should present the overall resources available (cash as well as in-kind) for center activities, one row for each financial source.

Affiliation	**Year 1**						**Year 2**						**Summary Stage 1**					
	Budget (kSEK)			**Outcome (kSEK)**			**Budget (kSEK)**			**Outcome (kSEK)**			**Budget (kSEK)**			**Outcome (kSEK)**		
	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total
VINNOVA																		
University																		
Industrial & Public Partners																		
Partner A																		
Partner B																		
Part…..																		
Sum																		

VINN Excellence Centre:	
Berzelii Centre:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table 9: Overall Expenditures

List all expenses for the centre at an aggregated level.

	Year 1						Year 2					
	Budget (kSEK)			Outcome (kSEK)			Budget (kSEK)			Outcome (kSEK)		
	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total
Salaries (from "Staff sheet")												
External services												
Equipment												
Material, running costs etc.												
Travel												
Other												
Overhead costs												
Sum												

	Summary Stage 1					
	Budget (kSEK)			Outcome (kSEK)		
	Cash	In kind	Total	Cash	In kind	Total
Salaries (from "Staff sheet")						
External services						
Equipment						
Material, running costs etc.						
Travel						
Other						
Overhead costs						
Sum						

VINN Excellence Center:
Berzelii Center:
Dnr:
Year 1: 200x-xx-xx - - 200x-xx-xx
Year 2: 200x-xx-xx - - 200x-xx-xx

Table 10: Research Personnel

List all personnel working in the centre. Preferably group them in order to use the information in other parts of the report

				Year 1						Year 2					
				Budget			Outcome			Budget			Outcome		
Name	**Affiliation (financing source)**	**University degrees**	**Category title, status / position**	**Degree of activity in the center**	**Cash contr.**	**In kind contr.**	**Degree of activity in the centre**	**Cash contr.**	**In kind contr.**	**Degree of activity in the center**	**Cash contr.**	**In kind contr.**	**Degree of activity in the center**	**Cash contr.**	**In kind contr.**
	Center / Univ / Partner	(year of degree, university)	Prof / Res / PhD / Manager	% of full time	kSEK	kSEK	% of full time	kSEK	kSEK	% of full time	kSEK	kSEK	% of full time	kSEK	kSEK

VINN Excellence Center:	
Berzelii Center:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table 11: Project expenditures

Follow up that resources have been used for learning activities and communication (5% of VINNOVA funding), list of projects and financial size

	Year 1						Year 2						Summary Stage 1					
	Budget (kSEK)			Outcome (kSEK)			Budget (kSEK)			Outcome (kSEK)			Budget (kSEK)			Outcome (kSEK)		
	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total	Cash	In kind	Total
Management of center																		
Communication																		
Learning activities																		
Reserved for NEW PROJECTS																		
Projects (subprojects included)																		
Sum																		

VINN Excellence Center:	
Berzelii Center:	
Dnr:	
Year 1:	200x-xx-xx - - 200x-xx-xx
Year 2:	200x-xx-xx - - 200x-xx-xx

Table 12: Related Research Grants

List grants granted, applied for and under preparation - project title, total amount applied for, duration of project, funding source, date of applicatin and any comment you might have

Project Title	Status	Total amount applied for	Duration of project	Funding source	Date of application	Comments
	Granted / Applied / Under preparation/ Rejected	kSEK				

Appendix C:
The evaluation teams

CTS

Generalist Evaluators

Prof emeritus **Per Stenius** (chairman of the evaluation team)
PS Interfaces
Sweden

Professor **Atilla Incecik**
University of Strathclyde, Glasgow
Scotland, UK

Specialist Evaluator

Professor **James Odeck**
Norwegian University of Science and Technology
Norway

LIGHTHOUSE

Generalist Evaluator

Prof emeritus **Per Stenius** (chairman of the evaluation team)
PS Interfaces
Sweden

Specialist Evaluators

Dipl. Ing. Michael vom Baur
MvB-euroconsult
Germany

Professor Atilla Incecik
University of Strathclyde, Glasgow
Scotland, UK

VINNOVA´s publications

July 2010

See www.VINNOVA.se for more information

VINNOVA Analysis VA 2010:

01 Ladda för nya marknader - Elbilens konsekvenser för elnät, elproduktionen och servicestrukturer

02 En säker väg framåt? - Framtidens utveckling av fordonssäkerhet

03 Svenska deltagandet i EU:s sjunde ramprogram för forskning och teknisk utveckling - Lägesrapport 2007 - 2009. *Only available as PDF. For brief version see VA 2010:04*

04 SAMMANFATTNING av Sveriges deltagande i FP7 - Lägesrapport 2007 - 2009. *Brief version of VA 2010:03*

05 Effektanalys av stöd till strategiska utvecklingsområden för svensk tillverkningsindusytri. *For brief version in Swedish and English see VA 2010:06 and VA 2010:07*

06 Sammanfattning - Effektanalys av stöd till strategiska utvecklingsområden för svensk tillverkningsindusytri. *Brief version of VA 2010:05, for brief version in English see VA 2010:07*

07 Summary - Impact analysis of support for strategic development areas in the Swedish manufacturing industry. *Brief version of VA 2010:05, for brief version in Swedish see VA 2010:06*

08 Setting Priorities in Public Research Financing - context and synthesis of reports from China, the EU, Japan and the US

09 Effects of VINNOVA Programmes on Small and Medium-sized Enterprises - the cases of Forska&Väx and VINN NU. *For brif version in Swedish see VA 2010:10*

10 Sammanfattning. *Brief version of VA 2010:09*

11 Trämanufaktur i ett uthålligt samhällsbyggande - Åtgärder för ett samverkande innovationssystem. *Only available as PDF*

VINNOVA Information VI 2010:

01 Transporter för hållbar utveckling

02 Fordonsstrategisk Forskning och Innovation FFI

03 Projektkatalog 2010 - Branschforskningsprogrammet för skogs- & träindustrin

04 Årsredovisning 2009

05 Samverkan för innovation och tillväxt. *For English version see VI 2010:06*

06 Collaboration for innovation and growth. *For Swedish version see VI 2010:05*

07 Cutting Edge. *A VINNOVAMagazine in Chinese/English*

08 Vinnande tjänstearbete - Tio forsknings- & utvecklingsprojekt om ledning och organisering av tjänsteverksamhet. *Only available as PDF*

09 NO WRONG DOOR Alla ingångar leder dig rätt - Erbjudande från nationella aktörer till SMF - Små och Medelstora Företag.

10 Därför behöver Sverige en innovationspolitik

VINNOVA Policy VP 2010:

01 Nationell strategi för nanoteknik - Ökad innovationskraft för hållbar samhällsnytta

02 Tjänsteinnovationer för tillväxt. Regeringsuppdrag - Tjänsteinnovationer. *Only available as PDF*

VINNOVA Report VR 2010:

01 Arbetsgivarringar: samverkan, stöd, rörlighet och rehabilitering - En programuppföljning

02 Innovations for sustainable health and social care - Value-creating health and social care processes based on patient need. *For Swedish version see VR 2009:21*

03 VINNOVAs satsningar på ökad transportsäkerhet: framtagning av underlag i två faser. *Only available as PDF*

04 Halvtidsutvärdering av TSS - Test Site Sweden - Mid-term evaluation of Test Site Sweden. *Only available as PDF*

05 VINNVÄXT i halvtid - Reflektioner och lärdomar. *For English version see VR 2010:09*

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