

Third Call for Proposals

Open 6 November 2009 to 10 March 2010

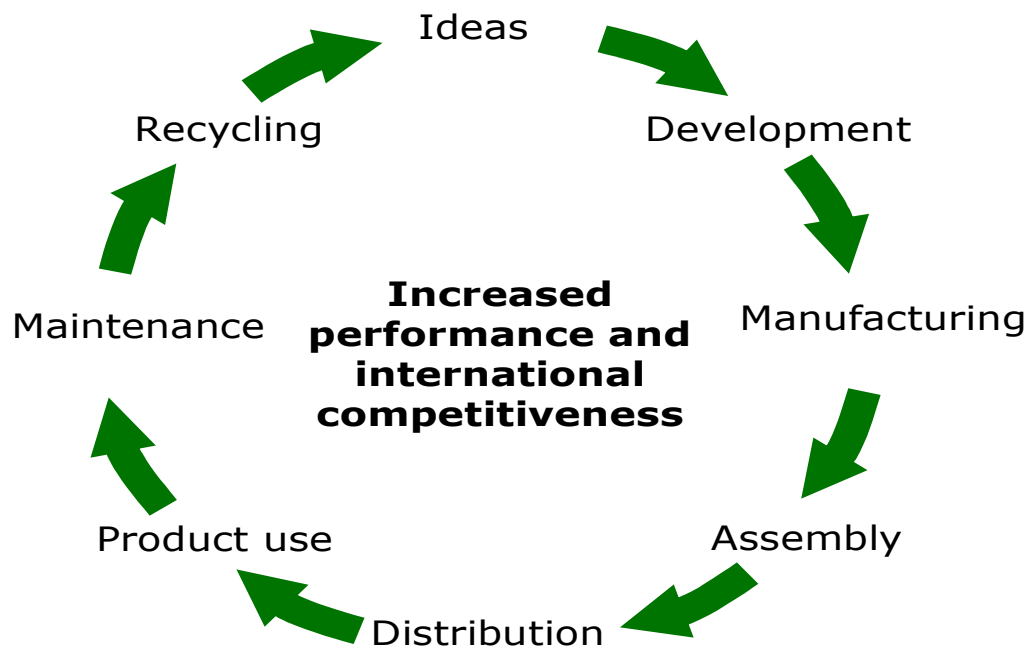
Research programme in the field of Product Realization

1. Introduction

During the period 2002-2007, the Swedish Foundation for Strategic Research, SSF, has conducted the industrial research programme ProViking, including a Graduate Research School. The programme has been very successful and popular with both industry and academia and will for this reason be continued with roughly the same scope during the period 2008-2013.

The objective of the programme is to implement the results of the world-leading research that is being conducted within the programme in Swedish industry and to train PhDs to meet the needs of industry and academia. This will strengthen the international competitiveness of Swedish companies and create more jobs in Swedish industry.

The programme is focused on companies in the engineering industry with production and/or product development and operations in Sweden. The research will be concentrated in one or all of the following areas; ideas, production development, design, product support, use, maintenance and recycling – all with a life cycle perspective.



The programme embraces the whole product realization process, and the research is expected to lead to new ideas and concepts, theories, methods, tools and processes. The need to be able to handle increasingly complex processes requires cooperation between different technological fields.

The research is focused on products, services and/or industrial processes and on areas considered to be of the greatest importance for the competitiveness of Swedish industry in an international perspective.

The programme is aimed at both long-established and recently started companies. The participation of SMEs in the projects is particularly encouraged and prioritized, and preferably in cooperation with large enterprises. Project proposals with participating PhD students are prioritized.

Visionary and creative proposals – with high potential for implementation as well as high risk – are looked upon with particular favour.

The research projects should have solid corporate support and be conducted in close cooperation with research institutes and/or universities. The projects should be aimed at a product, a process or a service. Several companies and one or more institutes/universities should participate in each project.

2. Holistic view

Sweden has a long tradition of having a strong manufacturing industry capable of developing advanced system products with tough requirements on product development, production and consumer support. A holistic view and a systems approach are distinguishing features.

New technical systems, designed with a view towards sustainable development, excellent environmental performance, globalization and advanced networks, are influencing current industrial systems in a radical way and often need a new radical way of approach.

Constant demands for renewal require speed, flexibility and adaptability. Due to the global market and increasing competition, suppliers are also placing greater importance on meeting customer demands throughout the life cycle of the product.

Improving environmental and general performance for products, processes and services is creating new business opportunities. Environmental impact occurs not just during manufacture, but during the entire life cycle of the product including distribution, use, maintenance and recycling. The potential for improving and optimizing environmental performance during the product realization process is underestimated. Competitiveness can be greatly improved by developing new solutions at an early stage that are energy-efficient, conserve natural resources and otherwise have good environmental performance. Project proposals with these characteristics will be prioritized and favoured.

3. Definition of research area – product realization in a life cycle perspective

The programme embraces the whole product realization process as it is defined above and the research is expected to lead to new ideas and concepts, theories, methods, tools and processes. The research should be focused on products, services and/or industrial process with a life cycle perspective. A systems approach and a holistic view are often of crucial importance for the competitiveness.

The research should be focused on areas that can be regarded as being of the greatest importance for the competitiveness of Swedish industry. The programme is aimed at both long-established and recently started companies.

Visionary and creative proposals – with high potential for implementation and high risk – are particularly encouraged.

Products and services

The following research areas with a focus on performance and competitiveness are foreseen:

- Development of systems concepts for flexible and adaptable design/production
- Development of functions as well as hardware, software and services to meet customer demands
- Integrated systems engineering supporting the use of multiple technologies in advanced products
- Development of “virtual products”, including methods for realistic modelling, simulation, visualization and optimization of the functionality of the whole product
- Development of *specific core competencies* of the greatest importance for corporate competitiveness

Industrial processes

In all likelihood, the normal product life cycle – from idea to recycled product – will be shorter in the future. Moreover, customers will demand shorter delivery times. The suppliers will have to be more efficient than today and be able to assemble products from a large number of parts from sub-suppliers. The strategic importance of the production system, its concept and the supply chain will increase.

Research is foreseen within the following areas:

- Product data and knowledge management throughout the life cycle of the product
- Internal processes in combination with external processes in an international partnership network
- Methods for analyzing and describing created customer values
- The product realization process, including innovation
- Production system solutions including supply chains
- Product concepts and methods for describing product functions, performance and geometrical boundary conditions
- Methods and software so that virtual components, whole products (with or without embedded software) and monitoring systems can be sent electronically between companies to permit simulations during the entire product life cycle
- The simulations should include aspects such as manufacture, assembly, disassembly, use, maintenance and recycling.
- Product support, including maintenance and other aftermarket activities

4. The National Graduate Research School

One important result of the ProViking programme will be people educated and trained for the needs of industry. These persons must have broad knowledge and be capable of systems thinking and a holistic approach, at the same time as they must possess more in-depth knowledge within a specific field. It is mandatory for the PhD students in the ProViking projects to enrol in and take active part in arranged yearly student gatherings and attend the Graduate Research School. The PhD students shall develop personal networks - national and international (through Kunskapsförmedlingen and ProViking Scholarships) - with the support

of their supervisors. The Project Leader for a ProViking project shall actively work for and plan for that the PhD students in the project apply for ProViking Scholarships.

5. How a research project is conducted

A research project consists of two or more companies collaborating with one or more universities/institutes to achieve the goal of the project. The project is defined in a *Project Plan* with goal, project team, budget, results, timetable, etc. The project is led by a highly qualified person (the Project Leader) from one of the participating companies/universities/institutes. The Project Leader is responsible for both the execution of the project and contacts with the ProViking programme. One of the participating universities/institutes in the research project will be the Trustee (*Grant Holder*) and will administrate the project grant. ProViking will draw up a *framework agreement* with the university/institute. Furthermore, a *project agreement* will be entered into by all participating parties in the project.

This work form is intended to ensure world-class research with industrial relevance and efficient implementation of the research results in the companies. The project should result in a new and competitive knowledge in the form of methods, tools and products and/or processes.

For further information, see sections 6 and 7 below.

6. Applications and timetable.

ProViking has allocated SEK 40 million for this third Call for Proposals for projects extending up to December 2013. This presumes matching support of at least the same size from other participants, primarily the participating companies.

ProViking will take an active part in the evaluation process. A Scientific Council and an Industrial Council will evaluate the applications and make their recommendations to ProViking's board, which decides on financial support.

The companies should provide funding in the form of cash and/or other resources to the different projects that at least matches the support from ProViking.

Questions regarding the programme or applications will be answered by the programme director, Lars Frenning, lars.frenning@proviking.se. Further information can be found at: www.proviking.se

How to apply

Applications are submitted electronically via a portal. The portal will be open for four months from Friday, 6 November 2009, until Wednesday, 10 March 2010 at 16.00 hours, when it will be closed.

Note that the applicant is one person (the Project Leader) at a company/university/institute.

All documentation must be in **English**, since the scientific evaluation is made by international evaluators. The evaluators are bound to secrecy.

You will find the portal at <http://www.ssf.3ddata.se>

You register first and then proceed to fill in the application. You can return and make additions or changes to your application during the entire application period. Submitting the application via the portal and following these instructions are mandatory. **Note that an application will only be accepted if the instructions are followed.**

Timetable

Third Call for Proposals opens	6 November 2009
Third Call for Proposals closes	10 March 2010
Hearing at SSF	11 and 12 May 2010
Decision by ProViking Board	3 June 2010
Projects can start	August 2010

7. Evaluation criteria

The applications will be evaluated according to the general criteria described above as regards the purpose of this programme: to support research in the field of product realization so that the competitiveness of manufacturing companies based in Sweden is strengthened. Strategic and industrial relevance and the support and engagement of industry are therefore principal criteria. The evaluation will look at both research content, with reference to the definitions in section 3, and the research process, with the aspects mentioned in sections 5 and 6. The Board of ProViking is responsible for making the decisions regarding support and evaluating the applications. The Board is supported by an industrial council and a scientific council. The Board and the councils are bound to secrecy. The scientific council consists of foreign individuals who are highly qualified in the field.

In addition, the following criteria will be used in evaluating the proposals:

- The business opportunities afforded by, and the scientific level of, the proposed research project
- Ideas and goals for improving corporate competitiveness
- The project leader's previous experience and track record
- The scientific level and track record of the proposed research leader and its team
- Quantified and measurable goals such as lead time reduction, cost reduction, increased flexibility, reduced energy consumption, reduced raw material consumption and/or improved quality
- The level of SME participation
- The scope of cooperation in the project
- The level of PhD participation
- The probability of success. To stimulate new approaches, especially innovative proposals may be accepted with a higher level of risk
- The plan for implementing the results in the companies
- Networking, national and international
- Climate impact
- Employment - how the project proposal will affect the employment
- Synergies with earlier funded ProViking projects
- Synergies with other funding bodies such as VINNOVA (the Swedish Governmental Agency for Innovation Systems), the Knowledge Foundation and the EU