



**Smarter
Elektroniksystem**
ELECTRONIC COMPONENTS & SYSTEMS

Granted Projects 2018

**Smarter
Electronic Systems**

ELECTRONIC COMPONENTS & SYSTEMS

A strategic innovation program to increase competitiveness and growth in Swedish industry

Granted Projects 2018

The call for feasibility studies, which closed on 6 Sep 2018, gave the following results:

A total of 9 applications were granted out of the 25 that were received. The 9 projects shared SEK 2.8 million in grants [Read more about all approved projects here](#) or on [Vinnova's website](#)

The call for research and innovation projects that closed on 8 March 2018 yielded the following results:

20 projects are granted a total of SEK 57.5 million in grants. These projects have a total budget of SEK 95.2 million. 47 applications were received for the application round, which together applied for SEK 131.7 million in grants. [Read more about all approved projects here.](#) or on [Vinnova's website](#)

The call for pre-studies that closed September 6, 2018 gave the following result:

In total, 9 of the 25 submitted applications were granted funding of totally SEK 2.8 million.

Granted Projects 2018

Following projects were funded in this call:

SITARIS – Smart diagnostics based on distributed sensor arrays and image signature recognition

Project budget 340 000 kronor, granted funding 169 000 kronor

Partners in project: KTH, ABB

Objectives: Conduct a feasibility study in order to develop a radically new approach to smart diagnostics based on identifying and extracting characteristic signatures from distributed sensor array images.

[Project summary from the coordinator here.](#)

[Slutrapport: Vinnovas portal](#)

MLW Interconnection and Integration Plattform

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in project: Chalmers, Ericsson, Metasum

Objectives: The goal is to verify two key aspects of the MLW technology for commercial viability; Manufacturability and Ease of integration

[Project summary from the coordinator here.](#)

[Slutrapport: Vinnovas portal](#)

Demonstration of energy efficient SiC power module with low inductance

Project budget 966 000 kronor, granted funding 400 000 kronor

Partners in project: Asensor Technology, GE Power Sweden, KTH

Objectives: The project aim is to demonstrate a cost effective hybrid assembly for power modules that makes considerable higher switch frequencies possible compared to standard modules

[Project summary from the coordinator here.](#)

Optical fibre pressure sensors with enhanced sensitivity

Project budget 810 000 kronor, granted funding 400 000 kronor

Partners in project: RISE, SKF, Svensk Kärnbränslehantering

Objectives: The prestudy will outline technical solutions and commercial prospects for a fibre optic pressure sensor system, adapted for use in industrial settings

[Project summary from the coordinator here.](#)

[Slutrapport: Vinnovas portal](#)

Granted Projects 2018

IN TEMPO

project budget 600 000 kronor, Granted funding 300 000 kronor

Partners in project: Invisense, RISE

Objectives: To investigate the possibility of integrating a chipless temperature sensor and developing a positioning system for a unique, highly innovative, chipless, low-cost moisture sensor product. It will prepare for a larger R&D project with the long-term objectives of implementing the temperature sensor and positioning system to enhance the moisture sensor product performance and user efficiency.

[Project summary from the coordinator here.](#)

[Slutrapport: Vinnovas portal](#)

Smart reflex

Project budget 280 000 kronor, granted funding 140 000 kronor

Partners in project: RISE, POC Sweden

Objectives:

- » To develop a simple proof of concept for a Smart Reflex, based on knowhow in electrochromism and electronics design.
- » To investigate the preconditions regarding materials, system design and integration (into helmet, garments).
- » Initiate the build-up of a consortium for a larger application to Vinnova.

[Project summary from the coordinator here.](#)

[Slutrapport: Projektets egen slutrapport](#)

THz Systems 2025

Project budget 400 000 kronor, granted funding 200 000 kronor

Partners in project: Omnisys Instruments

Objectives: The goal is to develop new technology for THz systems broaden the use and applications of the THz technology significantly and making it commercially useful outside the traditional scientific markets.

[Project summary from the coordinator here.](#)

[Slutrapport: Vinnovas portal](#)

Granted Projects 2018

Miniaturized ultrasound technologies for monitoring of components and industrial processes

Project budget 800 000 kronor, Granted funding 400 000 kronor

Partners in project: Swerea Kimab, Atlas Copco, Xylem, LTU, RISE

Objectives: To use modern micro-ultrasound technology to monitor critical components and thus reduce the risk of unexpected interruptions

[Project summary from coordinator here.](#)

[Slutrapport: Vinnovas portal](#)

Disruptive Improvement of the World's most Environmentally Friendly Display Technology

Project budget 800 000 kronor, granted funding 400 000 kronor

Partners in project: rdot, RISE

Objectives: Demonstrate the feasibility of creating a fully printed environmental friendly passive matrix display in large scale

[Project summary from coordinator here.](#)

[Slutrapport: Vinnovas portal](#)

The call for research and innovation projects that closed on March 8 2018 yielded the following results: 20 projects are granted a total of SEK 57.5 million in grants.

3D haptic touch ASIC

Project budget SEK 8,915,000, grant SEK 3,990,000

Participants in the project: MyVox AB, ShortLink, LiU, Autoliv

Objectives of the project: to develop an ASIC with the following characteristics:

- » Possible to mass produce in IC Foundries (for example AMS Austria, X-Fab-Germany, STM-France, TSMC-Taiwan etc.) at cost of less than 5 USD,
- » Less than 1 mW / channel in total power consumption thereby making possible its use in mobile units.
- » A minimized ASIC form factor of ~50-100 mm² (5-7 x8-12 mm) with a thickness of less than 0.3 mm.
- » Allowing both analog and digital Tx/Rx beam forming of 96×96 channels pMUT transducers

[Project summary from coordinator here.](#)

Granted Projects 2018

Higher-symmetric structures for future 5G communication systems

Project budget SEK 5 000 000, grant SEK 1 924 000.

Participants in the project: KTH, Ericsson AB, Sunway, Digital Metal

Objectives of the project: Main goal of project is to produce a technological breakthrough based on the concept of higher symmetries for generating highly efficient antenna systems for 5G

[Project summary from coordinator here.](#)

Pilot study for improved traffic safety for emergency vehicles using EVAM transmit technology

Project budget SEK 3 549 000, grant SEK 1 774 000.

Participants in the project: H&E Solutions AB, Inission Stockholm AB, Statens väg- och transportforskningsinstitut

Objectives of the project: The project aims to clearly investigate and evaluate the value chain and effects of EVAM Transmit to improve road safety for emergency vehicles

[Project summary from coordinator here.](#)

DIGEST: Digitalization of HVDC grids via smart data discovery

Project budget SEK 9 165 000, grant SEK 4 000 000.

Participants in the project: ABB AB, Mälardalen University

Objectives of the project: To establish a framework of smart data processing to support monitoring and real-time analysis of HVDC grids. This framework will be equipped with new methods and techniques that are capable of:

- » selecting the most discriminative features to describe HVDC cases
- » discovering the most significant HVDC cases to build the smart case base
- » incrementally updating the smart case base in real-time to adapt to varying operation conditions
- » fast identifying the fault (together with the root cause) in real-time by similarity-based reasoning with the smart data

[Project summary from coordinator here.](#)

Granted Projects 2018

Smart multi-channel charge amplifier for x-ray spectrography

Project budget SEK 5 900 000, grant SEK 2 950 000.

Participants in the project: Orexplore AB, Grepit AB, Luleå University of Technology

Objectives of the project: Based on the successful feasibility study, design and ASIC for a multi-channel spectrometer for X-Ray spectroscopy, adapted for an analysis machine for mineral samples.

[Read more about the project here.](#)

Connect my body: from in-body communication to the health care system

Project budget SEK 3 163 000, grant SEK 1 486 000.

Participants in the project: Box Play Alleato AB, Uppsala University, Akademiska sjukhuset, Intel

Objectives of the project: To reliably connect in-body sensor networks to health care systems

[Read more about the project here.](#)

A Digital Pre-Distortion Power Amplifier for the NB-IoT Standard

Project budget SEK 6 693 000, grant SEK 3 347 000.

Participants in the project: Xenergetic AB, Lunds Universitet

Objectives of the project: Design of a PA (Power Amplifier) with “Digital Predistortion” (DPD). A transceiver will be integrated with a DPD-algorithm developed by Lund University in cooperation with Xenergetic AB.

Test-chip will be fabricated and measurements will be conducted in EIT’s electronics lab.

[Project summary from coordinator here.](#)

Millimeter-wave massive MIMO systems with smart beamforming

Project budget SEK 4 080 000, grant SEK 2 040 000.

Participants in the project: Lund University, Sony Mobile Communications AB

Objectives of the project: Prototyping a millimeter-wave massive multiple-input multiple-output systems with smart beamforming capability for 5th generation new radio.

[Project summary from coordinator here.](#)

Granted Projects 2018

INITIATE = InNovative acTive integrATED antennas

Project budget SEK 8 600 000, grant SEK 4 000 000.

Participants in the project: Chalmers, Ericsson AB, Gapwaves AB

Objectives of the project: The goal of this project is to improve cost- and energy efficiency of 5G wireless communication transmitters through investigation of novel integrated active antenna concepts.

[Read more about the project here.](#)

Advanced laser for industrial lithography

Project budget SEK 3 060 000, grant SEK 1 530 000.

Participants in the project: KTH, Mycronic AB, Svenska Laserfabriken AB

Objectives of the project: To develop a compact and effective laser for Mycronic AB's lithography system. The prototypes will be evaluated in the systems and be a starting point for productization

[Project summary from coordinator here.](#)

Development of a nano-plasmonic fiber optic sensing platform for battery monitoring

Project budget SEK 3 402 000, grant SEK 1 701 000.

Participants in the project: Insplorion, RISE Acreo

Objectives of the project: To design, develop, and evaluate a low-cost, robust and efficient sensor system based on a fiber

[Read more about the project here.](#)

Digital receivers that are extremely wideband

Project budget SEK 5 736 000, grant SEK 2 500 000.

Participants in the project: Saab AB, Ericsson AB, Lund University

Objectives of the project: To design and demonstrate fully integrated extremely wideband digital receivers that will pave the way for future electronic warfare as well as mobile network products

[Project summary from coordinator here.](#)

Granted Projects 2018

Open ROADM-solution in Swedish metro/regional environment

Project budget SEK 11 170 000, grant SEK 4 000 000.

Participants in the project: Smartoptics AB, RISE Acreo AB, Telia, IP-Only

Objectives of the project:

- » Create a forum in Sweden regarding open disaggregated optical networks consisting of operators, suppliers and research institutes.
- » Develop an open fiberoptic system solution with ROADMs for customers who intend to develop SDN-Controllers or buy Controllers externally.
- » Develop or customize an existing SDN-Controller which will allow for configuration and monitoring of the ROADM-network.
- » Develop Controller applications: A number of attractive applications in the SDNController that facilitate operation and maintenance of the optical networks.

[Read more about the project here.](#)

Integrated LIDAR system platform for gas profiling in combustion and industrial processes

Project budget SEK 5 676 000, grant SEK 2 738 000.

Participants in the project: NEOLund AB, Lund Universitet, RISE, Vattenfall

Objectives of the project: The objective is to develop a sensor technology platform based on the new Scheimpflug LIDAR concept, for profiling and monitoring of combustion and industrial processes.

[Read more about the project here.](#)

Self-predicting and inter-communicating electric drives for industrial process optimization

Project budget SEK 6 100 000, grant SEK 2 918 000.

Participants in the project: KTH, ABB AB, Ericsson AB, Imagimob AB, LumenRadio AB

Objectives of the project: Proof of concept of a new way of achieving industrial process reliability, flexibility and optimization through smart electric drives forming an edge cloud. In this cloud, local self-monitoring and health prediction of electric machines and drives is implemented, through improved hardware, artificial intelligence and direct inter-drive communication

Granted Projects 2018

Smart multifunctional glass

Project budget SEK 8 000 000, grant SEK 4 000 000.

Participants in the project: RISE AB, RISE Acreo AB, ChromoGenics AB, Inwido Sverige AB, Hancap AB, Solibro Research AB, Vasakronan AB, Volvo PV AB

Objectives of the project: To develop smart multifunctional glass applications with an integrated electronic control system through industry-wide collaboration, including tests and evaluations in real-world environments

[Read more about the project here.](#)

5G mmwave RFIC antenna in package for customer premises equipment (CPE) and gigabit fixed access (FWA)

Project budget SEK 18 200 000, grant SEK 3 991 000.

Participants in the project: Siverts IMA AB, Uppsala University

Objectives of the project: Develop a 5G RFIC using in-packaged antenna for customer premises equipment. This solution will be used for FWA with the 5th generation mobile networks. The solution shall be a low cost RFIC using a packaging technology that secure an in-packaged antenna technology for the 5G mass-market providing high speed wireless data to the home also called FWA

[Read more about the project here.](#)

140 GHz micromachined gap waveguide-based LOS MIMO antenna array

Project budget SEK 8 200 000, grant SEK 4 000 000.

Participants in the project: Chalmers, Ericsson AB, RISE Acreo AB, Gapwaves AB, Mercene Labs AB

Objectives of the project: To realize wideband and high gain MIMO antenna module for 140 GHz which will be fabricated by low cost MEMS technology for use in backhauling links.

[Read more about the project here.](#)

Granted Projects 2018

Water alarm label – "thin film detector"

Project budget SEK 4 066 000, grant SEK 2 033 000.

Participants in the project: Tollco AB, RISE Acreo AB

Objectives of the project: Develop a wireless water alarm label. The production and product costs must be low. The label is produced/assembled in Sweden and benefits Swedish industry. With support from Swedish research, ensure the end users' need to protect their home against water damage. Practically implement the theoretical result from the feasibility study.

[Read more about the project here.](#)
