

RESEARCH EXHIBITION



# ACADEMY FOR SMART SPECIALISATION



**RESEARCH  
IS ART**

**THIS BROCHURE** contains the results of many years' research in a number of different areas – or at least artistic interpretations of these results.

**ELEVEN CREATIVE POSTERS** based on Karlstad University research projects are presented. Hopefully these illustrations will lead to many new interesting ideas, discussions and projects.

**THESE PROJECTS FORM PART OF** the Academy for Smart Specialisation, a partnership between Karlstad University and Region Värmland. The partnership brings together researchers, companies, social actors, funders and entrepreneurs.

**SMART SPECIALISATION** involves finding areas in which the region is already strong and has the potential to become internationally competitive. In Värmland's Research and Innovation Strategy for Smart Specialisation – part of the Värmland Strategy – six such areas are identified:

- Value-creating services
- Forest-based bioeconomy
- Digitalisation of welfare services
- Advanced manufacturing and complex systems
- Digitalised experience of nature, culture and place
- Systems solutions with solar energy

In addition, a specific gender-mainstreaming initiative is included in collaboration with the Centre for Gender Studies.

We hope that these eleven works of art will result in inspirational conversations with the researchers behind the projects. Do not hesitate to contact us if you have any suggestions for collaborations in the Academy for Smart Specialisation.

**ANDERS OLSSON**

**HÅKAN SPJUTH**

Coordinators of the Academy for Smart Specialisation at Region Värmland and Karlstad University, respectively.

# THE SHAPE OF BUSINESS TO COME

## THE SHAPE OF BUSINESS TO COME

Meco (Music Ecosystems Inner Scandinavia) investigates how music experiences are created, distributed and received in the digital landscape. How do people listen to music today? Who may play at festivals? Is it possible to make a living from music in our region? We want to create a viable, innovative and inclusive music culture in Värmland and Hedmark through cross-boundary partnerships between research, education and the music industry.

Through our research, we contribute to a regional music culture that is socially and economically sustainable as well as to increased quality of life for the people living and working in the region.

**PROJECT MANAGER**

**Karin Fast**  
(Senior Lecturer, Media and Communication Studies)

BETTER OVERVIEW OF AVAILABLE MUSIC SERVICES.  
GREATER DIVERSITY IN LOCAL MUSIC COMMUNITIES.  
IMPROVED CONDITIONS FOR A SUSTAINABLE MUSIC SCENE.



### SCREEN TIME OF OUR LIVES

Fundig, the research school on the digitalisation of teaching, includes seven practising teachers who are conducting studies at licentiate level as part of their teaching positions. The focus is on subject-specific teaching and digitalisation, for example in relation to topics such as media and information literacy, digital models used to teach technology, and the use of digital resources in education.

Through our research, we contribute to increasing the digital knowledge of teachers, enhancing the digital skills of pupils, and developing teaching suited to the future labour market.

**PROJECT MANAGER** Jorryt van Bommel  
(Senior Lecturer, Mathematics Education)

# SCREEN TIME OF OUR LIVES

### GOOD LAYERS

AT-Lab is a regional laboratory for additive manufacturing at Karlstad University. The aim is to introduce this technology to the industry in Northern Mid-Sweden. The technology offers unique opportunities for resource-effective manufacturing of complex or personalised products, with characteristics that cannot be produced using traditional techniques.

Through our research, we contribute to increased knowledge of 3D printing and advances in additive manufacturing and give companies the opportunity to test components manufactured at AT-Lab.

**PROJECT MANAGER** Pavel Krakhmalev  
(Professor, Materials Science)

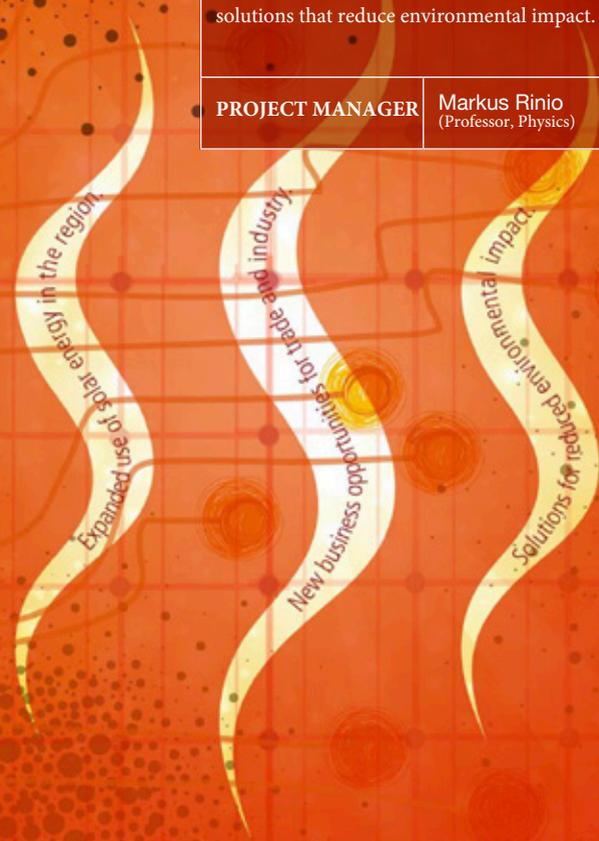
# Good Layers

## HERE COMES THE SUN

Solar Värmland will support the transition to a low-carbon economy. The group, started in 2012 and run by the silicon solar cell research group at Karlstad University, investigates how solar cells could be used as effectively as possible, how their efficiency changes over time and how new products and services connected to solar energy can be developed.

Through our research, we contribute to increased use of solar energy in the region, new business opportunities, as well as solutions that reduce environmental impact.

PROJECT MANAGER	Markus Rinio (Professor, Physics)
-----------------	--------------------------------------



Here comes the sun

## DIGITAL JOURNEY

PDU, the place-based digital experiences project, focuses on developing place-based experiences through digital solutions. The project wants to bring together businesses in the tourism and ICT sectors to increase competitiveness. The overall aim is to generate new knowledge, interactions, ideas and synergy effects between the academy and the business sector through a development and innovation process.

Through our research, we contribute to simplifying communications with tourists and creating new ways of marketing places as well as better tourist experiences.

PROJECT MANAGER	Lotta Braunerhielm (Senior Lecturer, Human Geography)
-----------------	--

DIGITAL JOURNEY

SMOOTHER COMMUNICATION WITH VISITORS.  
NEW WAYS OF PROMOTING PLACES.  
BETTER EXPERIENCES FOR TOURISTS.



## EVERYONE'S BUSINESS

The Gender Academy develops and applies research on gender, innovation and sustainable development. The aim is to equip and develop Värmland and its business sector through enhanced knowledge of gender, organisational change, gender mainstreaming and awareness of norms to increase innovation capacity, research and development intensity and the growth of the region's small and medium-sized companies.

Through our research, we contribute to more effective work environments, facilitate the understanding of the value of diversity, and generate insights into the commercial benefits of gender equality.

### PROJECT MANAGER

Ulf Mellström  
(Professor, Gender Studies)

# Everyone's BUSINESS

Business benefits through equality.  
More efficient work environments.  
Understanding of the value of diversity.

## TRY IT, YOU'LL LIKE IT!

Karlstad Lean Factory is a recently established development and meeting environment at Karlstad University. It includes a flexible simulator for training about lean thinking in an industrial environment. The aim is to optimise processes and production in the manufacturing industry and establish innovation capacity in organisations.

Through our research, we contribute to more environmentally friendly production, involving staff and providing better opportunities to simulate and test production designs.

### PROJECT MANAGER

Leo de Vin  
(Professor, Mechanical and Materials  
Engineering)

TRY IT, YOU'LL LIKE IT!

KARLSTAD LEAN FACTORY

OPPORTUNITIES TO SIMULATE AND TEST PRODUCTION SETUPS.  
INCREASED EMPLOYEE COMMITMENT.  
MORE ENVIRONMENTALLY-FRIENDLY PRODUCTION.

## ALL YOU NEED

Digitalwell Research aims to reinforce research, technological development and innovation in small and medium-sized business in the area of digital welfare services. Through systematic user involvement, the project will increase companies' ability to develop new services that securely meet the needs of the public sector.

Through our research, we contribute to the secure digitalisation of welfare services, improve interaction between individuals and welfare services and provide services that are adapted to actual needs.

### PROJECT MANAGERS

**Stefan Alfredsson**  
(Senior Lecturer,  
Computer Science)

**Erik Wästlund**  
(Senior Lecturer,  
Psychology)

**Mona Persenius**  
(Senior Lecturer, Nursing)

SECURE DIGITIZATION OF WELFARE SERVICES, BETTER INTERACTION BETWEEN THE INDIVIDUAL AND WELFARE, DIGITAL SERVICES TAILORED FOR ACTUAL NEEDS

ALL YOU NEED

IT'S ALL ABOUT ALL OF US



EXTENDED VALUE CHAINS AND NEW ARENAS THROUGH  
INDUSTRY-RESEARCH AND CROSS-SECTOR COLLABORATIONS.

A SHIFT THAT CAN BE COMBINED  
WITH SUSTAINABLE BUSINESS MODELS.

## IT'S ALL ABOUT ALL OF US

The project aims to create a responsible transition to a forest-based bioeconomy. It involves changing industrial production, but also changing consumption habits. With the help of the forest, we can adapt together!

Through our research, we contribute to extending value chains, creating new meeting places through cross-boundary partnerships, and promoting the insight that the whole society needs to participate in a green transition.

### RESEARCHERS

**Margareta Dahlström**  
(Professor, Human Geography)

**Ida Grundel**  
(Senior Lecturer, Human  
Geography)

**Hanna Martin**  
(Postdoctoral Researcher)

## TREETHINK

FoSBE, the Research Environment for a Circular Forest-Based Bioeconomy, collaborates with companies to develop new and existing test-bed environments, process steps, system designs and materials. We focus on how residue streams can be utilised to create new bio-based products, such as food packaging that is better adapted to sustainable development. We also work on issues related to modelling and system optimisation for forest-based process engineering and find ways of governing and managing innovation initiatives.

Since our research is conducted in close cooperation with companies, we can contribute new knowledge preparing them to fulfil future needs for new biomaterials and renewable bioenergy.

### PROJECT MANAGER

**Karin Granström**  
(Senior Lecturer, Environmental and Energy Systems)

# Treethink

New and improved testbed solutions

More companies active in research and innovation projects

Internationally recognized research environments in forest-based bioeconomy

## GREEN CASH

This project involves profiting from the sustainable bioeconomy. New business opportunities can be discovered through improved knowledge of client needs – and this may lead to innovative offers that cannot easily be copied by others.

Through our research, we contribute to win-win solutions in the green bioeconomy, enhanced competitiveness and increased profits from green values

### RESEARCHER

**Mikael Johnson**  
(Senior Lecturer, Business Administration)

WIN-WIN solutions in  
forest bioeconomy

INCREASED profitability  
through green values

NEW business opportunities  
through knowledge of  
CUSTOMER NEEDS

# GREEN CASH



## ACADEMY FOR SMART SPECIALISATION

