

# CHALLENGE-DRIVEN INNOVATION

VINNOVA'S NEW STRATEGY FOR STRENGTHENING  
SWEDISH INNOVATION CAPACITY



## BACKGROUND AND RATIONALE

**In the spring of 2010 VINNOVA initiated a new strategy process. Its aim is to improve VINNOVA's effectiveness and efficiency in supporting innovation-led growth in Sweden and to respond to the global challenges facing Swedish industry and society.**

VINNOVA is moving towards a challenge-driven strategy. The rationale for this shift is the globalisation of knowledge, technology and capital flows. This has enabled new sources and forms of competition and opened up new markets and opportunities for the creation and delivery of innovations. To remain competitive, Swedish industry, like that in many other countries, has been forced to move up the value chain and embrace innovation, entrepreneurship and collaboration in new ways. Moreover, Sweden is facing a number of social challenges that will have a strong impact on economic performance, such as an ageing population. At the same time, there is an increasing need to address global challenges like climate change, health, pollution, resource depletion etc. New, innovative approaches are urgently needed to meet these challenges. In response to the above described conditions, VINNOVA has decided to develop a new strategy that is more suited to address the new challenges and opportunities.

This challenge-driven strategy derives from the important social and societal challenges driving the development of innovations and bringing global market opportunities. In contrast to science and technology-led initiatives, VINNOVA's strategies have the following characteristics:

- Addressing essential or critical needs in society and industry. These needs require users/customers whose demand for solutions incentivises them to engage in developing and testing new solutions. Co-creation is a critical success factor.
- Promoting new, cross-sector collaborations to find solutions to the needs; solutions to social and societal challenges are rarely found in one traditional sector or a single research field. New collaboration patterns are emerging between actors in different value chains; for example 'green urban transportation' is being developed at the interface between energy, automotive engineering and ICT.
- Fostering systemic approaches which address different social subsystems, framework conditions, political, commercial, technological subsystems, etc.

The principal anticipated outcome of the challenge-driven strategy is:

- Improved impact on sustainable growth.
- Less fragmentation and improved operational focus and resource mobilisation.
- Innovative cross-sector solutions to unleash as-yet undiscovered innovation opportunities on the market.
- Increased demand-driven innovation initiatives which balance traditional supply-based science and technology schemes.

### **VINNOVA's challenge-driven innovation areas**

VINNOVA has currently focused its strategy on four social challenges which drive the development of innovations with international potential. The choice has been based on the Agency's mission – innovation-led sustainable growth in Sweden – and its new role – to connect and catalyse actors involved in the creation and delivery of innovations.



### **Sustainable and attractive cities**

Today, more than 50 % of the world's population lives in towns and cities, a number that is expected to increase. Yet urban areas are not merely problem-producers, they also offer significant potential for solutions. Well-functioning cities are a cornerstone of economic development of a country and crucial to societal wellbeing.

Dense populations of people must be organised so that:

- Cities remain attractive.
- Traffic networks function.
- Environmental problems are avoided.
- The use of valuable resources is reduced and the provision of electricity and water is assured for all inhabitants.

There are numerous potential solutions to these challenges, and they are urgently needed globally. Exploring these opportunities requires a new level of integration between policy and research areas and private as well as public operators.



### **Health, wellbeing and medical care**

Good health is essential to human welfare and to sustained economic and social development. Many countries are facing multiple challenges. These include demographic changes; meeting the demands of elderly people for independent living and high-quality health care. There are also increasing demands on health promotion and prevention (to improve quality of Life). Also, the development of new medicines and advanced technology requires new cost-effective healthcare solutions as well as innovative health management solutions. An increasing number of growing economies will demand better healthcare, public services and quality housing. Lifestyle-related diseases, pandemics, pollution, mental illness, are putting increasing pressure on the quality and availability of care. Antibiotic resistance is a further challenge.

Thus, health, wellbeing and medical care creates possibilities for:

- New innovative custom-oriented (e-)services.
- New markets for goods and services, e.g. silver economy/ageing society, health management.
- Technical and medical solutions – new possibilities and a growing market for industry.
- Climate and environment – green, smart healthcare.
- Process innovations towards more patient-centred, effective care production.

### **Competitive industry**



Sweden has a long tradition of producing goods and services, with a large proportion of the products based on natural resources. Nevertheless, constantly increasing global competition, climate change, resource scarcity, demography, and long distances to growing markets etc. is constantly threatening to erode Sweden's competitive edge in the global marketplace. Therefore, the importance of fast, flexible, resource-efficient, integrated and sustainable production of goods and services is growing. New business models and ways of organising work and improved innovation processes are also needed.

For Swedish industry, an opportunity thus emerged for delivering:

- Individualised products.
- Resource-smart design and production.
- A focus on customer value.

### **Information society 3.0**



Advances in information and communication technologies (ICT) have profoundly changed the way we do business, develop products, act as consumers and interact as humans. Europe has more than 250 million Internet users online every day and the number of devices getting connected is forecasted to reach more than 50 billion in the near future. This will create new opportunities for business and wealth. However, despite ICT's positive impact as an enabler, the information society will face social challenges which must be effectively addressed if the benefits of the information revolution are to be brought out. Hence, VINNOVA is focusing on addressing such challenges as:

- Trust and utility for users whilst at the same time offering personal integrity and security on the Net.
- Support for social inclusion and democracy.
- Reliability, availability and openness of information, services, goods and applications.
- An open, neutral and effective infrastructure, embracing heterogeneity and interoperability.

## **Moving forward – impact on activities and funding schemes**

VINNOVA has developed its strategy in close collaboration with representatives from industry, the public sector, academia and capital markets. Using interactive workshops, the above challenges have been refined into innovation areas where Sweden has a competitive advantage. Different strategies for exploiting the opportunity have been defined based on each challenge. Several similarities in approaches were identified:

- Co-creation amongst actors in value chains involving users and customers in the process.
- Development of innovation platforms and testbeds which provide opportunities for testing in miniature of business models, products, collaboration patterns etc. under market conditions.
- Utilisation of Swedish infrastructure to promote new solutions to the challenges via information, communication and transport infrastructures etc. in innovative combinations.
- Utilisation of our Swedish ability to manage complex system development processes and build international partnerships.

The next step will be to openly invite actors/stakeholders/customers to propose initiatives to address the challenges and innovation areas whilst at the same time offering the applicants opportunities to improve collaboration, competitiveness, profitability and growth. The approach is to challenge them to express their needs, growth plans, aspirations and contribution to Swedish society and industry.

The strategy process will continue to be developed in consultation with relevant stakeholders. We will identify areas which need to be analysed in more detail so as to outline new opportunities and ways forward for Sweden.



VINNOVA, Swedish Governmental Agency for Innovation Systems, is Sweden's innovation agency. Our aim is to increase the competitiveness of Swedish researchers and companies.