



# Developing Innovation Ecosystems in Skåne Region via Research Institutes

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Research Institutes of Sweden



# RISE: Swedens RTO

- Present across the whole of Sweden. And beyond.
- 2,700 employees, 30 % with a PhD.
- Turnover approx. 270 million € (2017).
- A large proportion of customers are SME clients, accounting for approx. 30 % industry turnover.
- Runs 100s of test and demonstration facilities, open for industry, SMEs, universities and institutes (RISE is owner and partner in 60 % of all Sweden's T&D facilities).

 ***Important role for national RTOs***



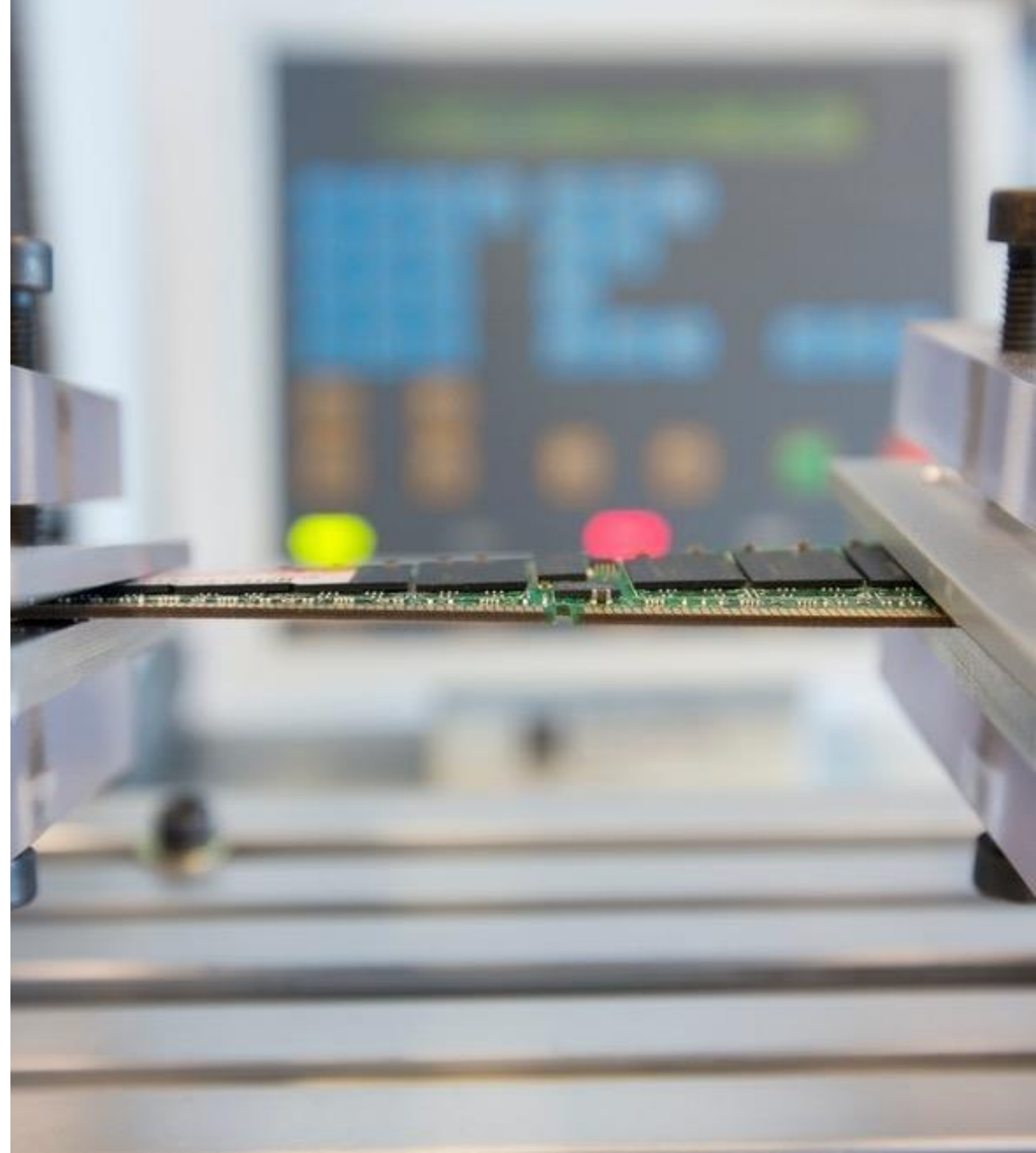


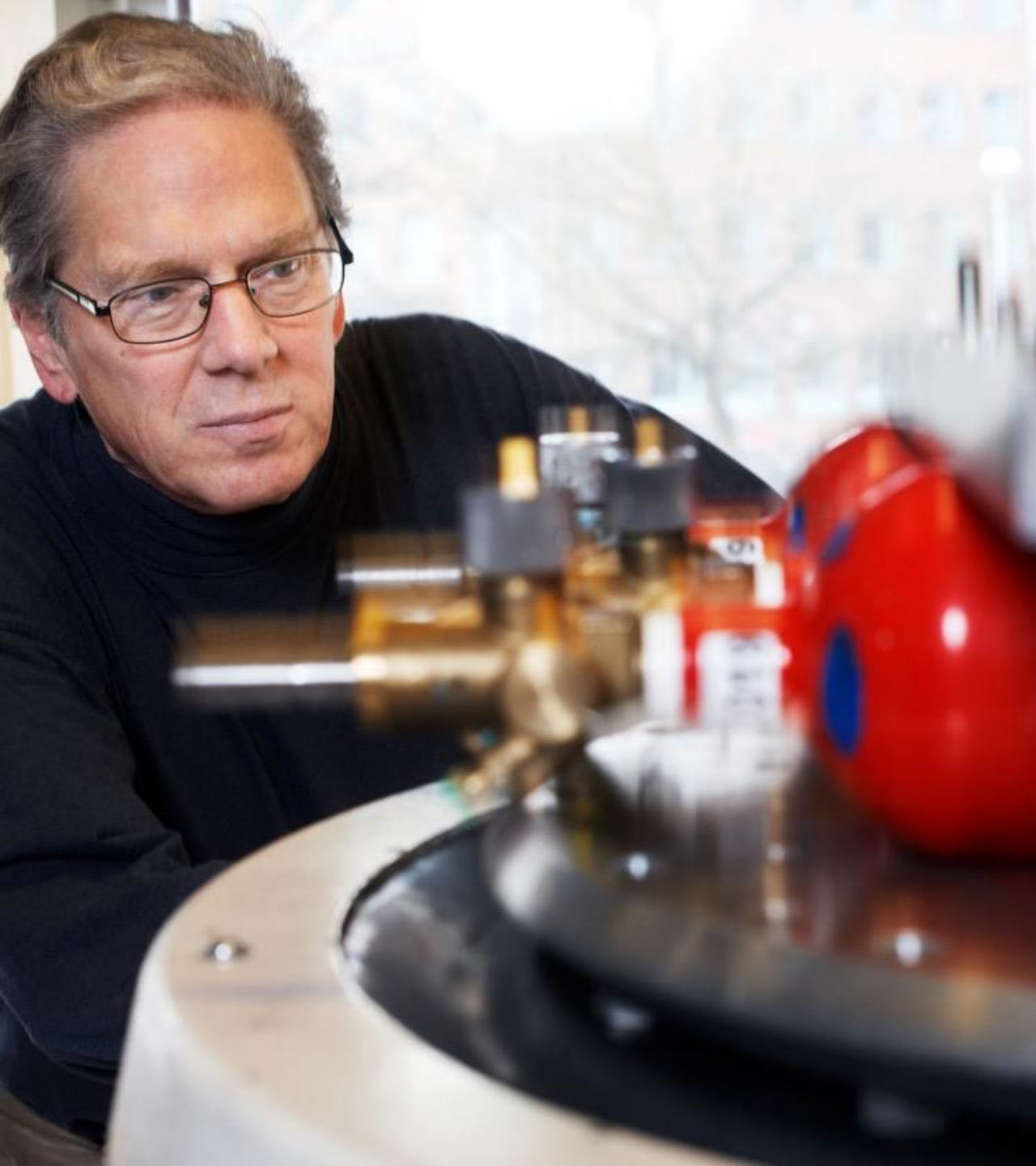
# RISE testbeds and demonstration facilities

- **Unique infrastructures** for research, development and verification on lab and pilot scale
- **Physical or virtual environments** where businesses, academia, research institutes and the public sector can collaborate
- **Equipment** adapted for industrial applications with **qualified operators and technicians**
- **Expertise** in research, industrial applications and project management
- RISE owns, and has partnerships in, **more than 100 unique test beds and demonstration facilities.**

# What can be done at a RISE testbed and demonstration facility?

- Test and scale up the products and processes of the future under realistic conditions
- Direct, confidential assignments or, in research and innovation projects, assignments together with multiple stakeholders
- Access to a well-developed network of stakeholders and expertise that can contribute to new solutions and business opportunities





## Benefits of RISE testbeds and demonstration facilities

- Effective product, process or method development
- Reduced costs for development and production.
- Shorter time to market
- Reduced investments in own equipment
- Fewer test runs in own production facility
- Opportunity to collaborate with other stakeholders
- Through participation from several stakeholders, a Swedish strategic initiative is enabled.

# Awitar – a unique testing facility for autonomous vehicles

## Automotive Wireless Test and Research Facility

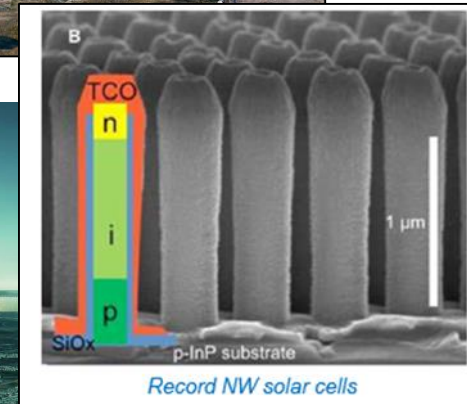
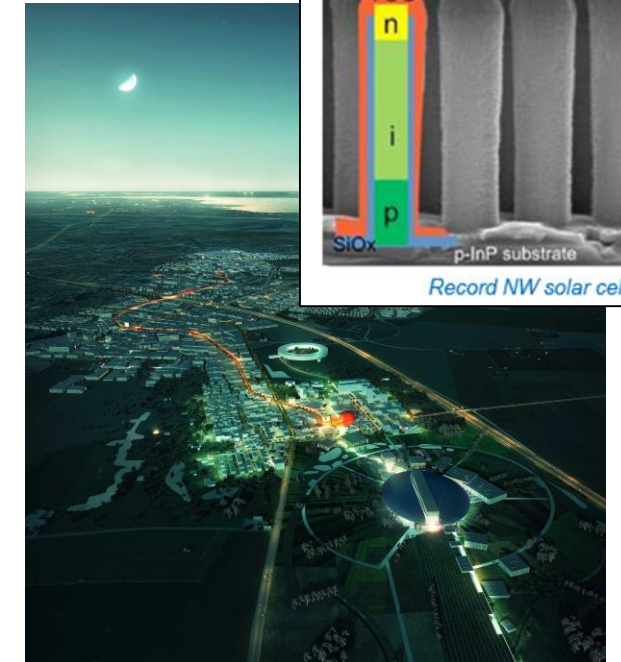
- The complexity of the vehicles on our roads – equipped with radar, cameras, and sensors – is growing rapidly. The disruptive testing of automotive electronics is therefore increasingly important and a prerequisite for transitioning to future autonomous vehicles, which must be able to communicate wirelessly with one another
- Awitar has been developed in close cooperation with the Swedish automotive industry. The new test facility for future vehicles is unique in its capacity and flexibility.



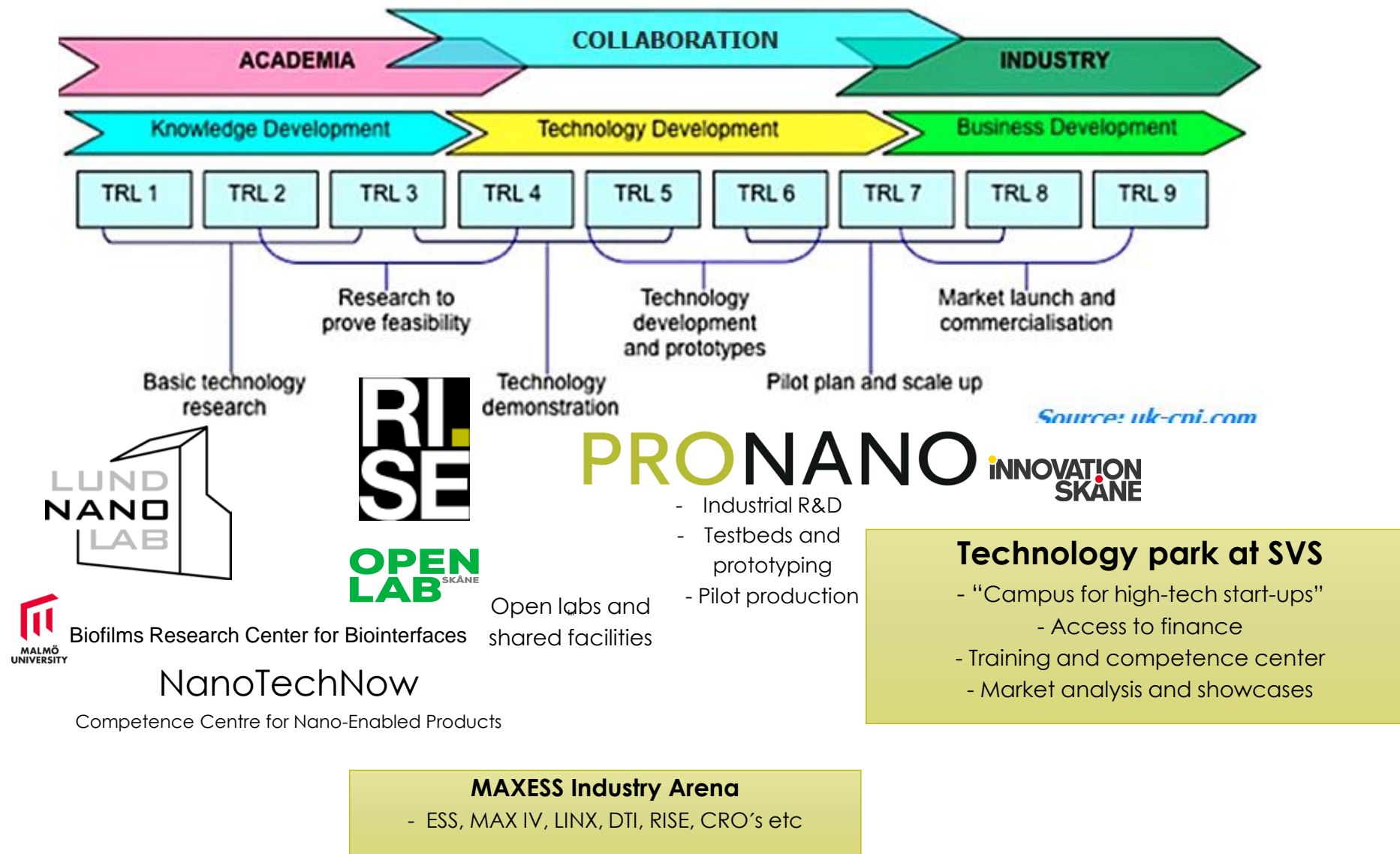
# Region Skåne International Innovation Strategy



- Well coordinated Smart Specialization Strategy (S3) Priorities: Smart Sustainable Cities, Personal Health, **Smart Materials**
- Based on established regional strengths and innovation capacities
  - World-class research in advanced materials (e.g. Lund NanoLab)
  - World-leading infrastructures for material research
    - MyFab: Swedish Research Infrastructure for Micro and Nano Fabrication
    - Max IV Synchrotron Radiation Facility
    - European Spallation Source: worlds most powerful neutron source
  - Top European RTO: RISE Research Institutes of Sweden
  - Ideon Science Park: Over 300,000 m<sup>2</sup> office space w/400+ companies
  - Strong industry clusters, e.g. Medicon Valley, Mobile Heights
- Coordinated regional initiatives to build for the future
  - Science Village Scandinavia
  - Vanguard Pilot action for Nanotechnology
  - **ProNano: Technology Infrastructure Pilot Facility for Nanotechnology**



# Ecosystem for Applied Nanotechnology and advanced materials at Science Village

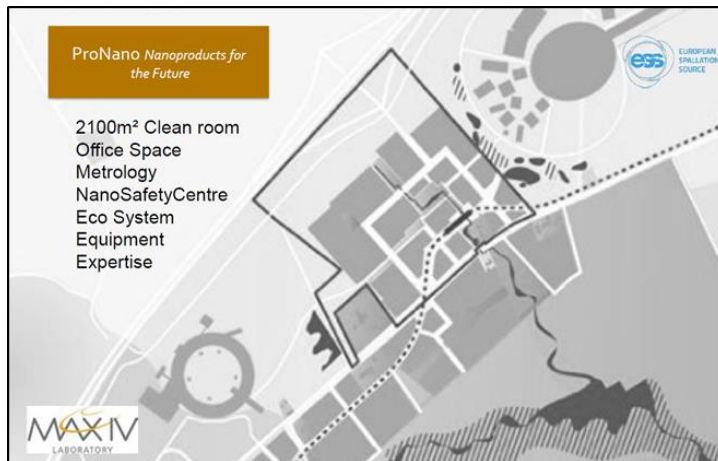
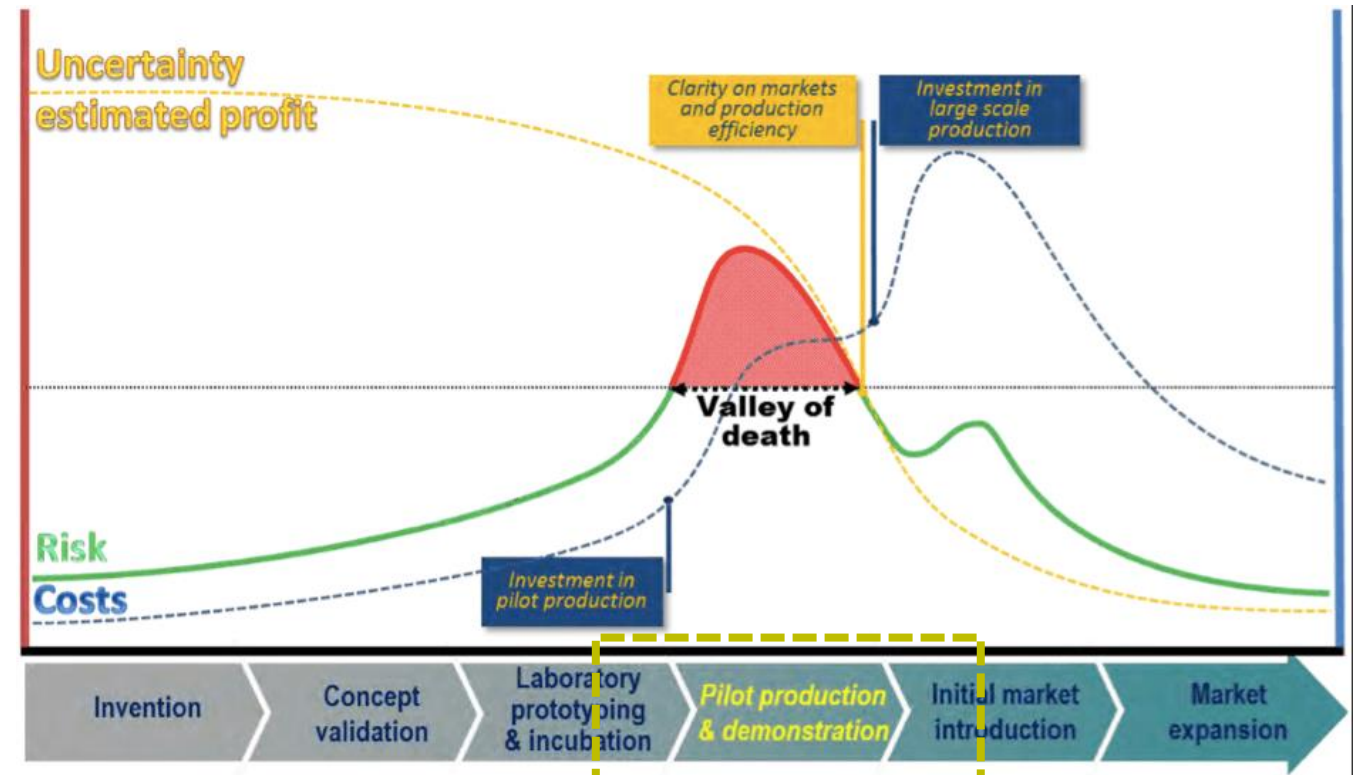




# PRONANO

NANOPRODUCTS FOR THE FUTURE

- Swedish Open Innovation Hub for Applied Nano- technology & Materials
- Grow research results into products
- NanoPilot Manufacturing Center
- Commercialization of nanotechnology based products



# ProNano Implementation

- Identify and build stakeholder organizational structure (steering group, working group, expert group, industry group)
- Build consensus and align stakeholder strategies (regional/national/local govt, university, industry and RISE)
- Implementation Plan
  1. Identify need/impact: Market analysis, benchmarking, growth potential, prioritized industries and market segments
  2. Describe offer: profile, functions, technologies, services, identify possible collaborations and network linkages
  3. Define governance: structure, organization, ownership, management, advisory
  4. Economy: business model, budget, financing (local, national, EU), risk management
  5. Implementation strategy:
    1. Small scale start with ability to expand
    2. Stepwise expansion with flexibility to adapt
    3. 3 year and 10 year plan with regular review and assessment
- Build supporting synergies
  - National networks (Nanosafety, ESS/MaxIV, Myfab, Industry)
  - Supplier partnerships
  - EU networks (e.g. EPPN)
  - National and EU research programs/projects
  - Vanguard, Interreg and other EU actions



# ProNano Challenges

- Industry support
  - Nanotech as KET can be far away from large company near term strategies
  - Nanotech spinoff and SMEs have short term focus
- Nanotech pilot facility investment
  - Advanced facility and environment requirements
  - High CAPEX: initially and continued investment required to stay relevant
  - High OPEX
  - Stakeholder risk sharing
- Building the Innovation Environment
  - Strategy for optimal impact (technical, market)
  - Highly skilled and innovative personnel
  - Environment for research, development and manufacturing
  - Industrial, academic and political stakeholder engagement
- Impact assessment and sustainability
  - KPI establishment (economic growth, jobs)
  - Methods and planning for expansion, evolution, wind-down
  - Invest in strong national and international linkages

