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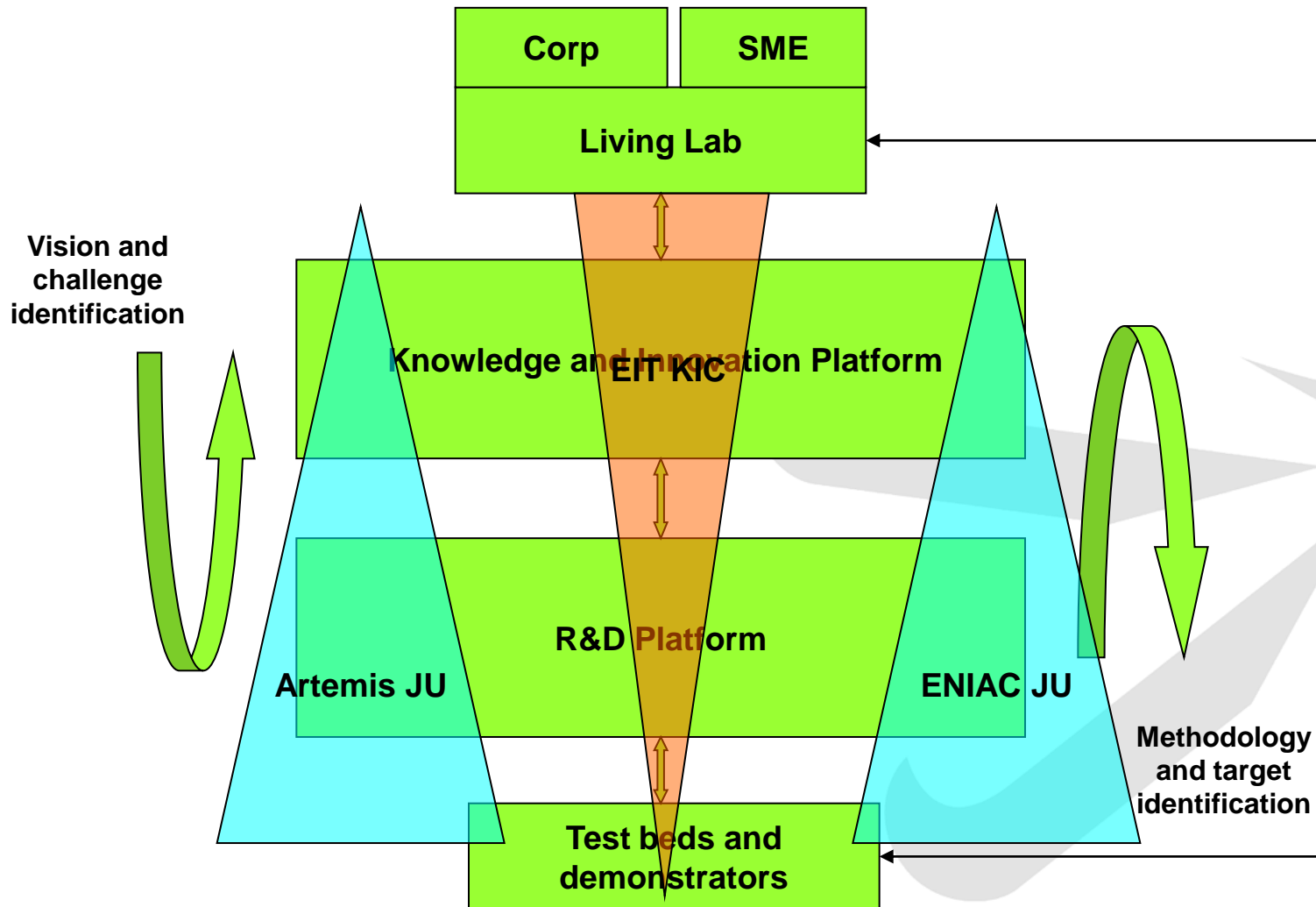
# Information Security Education in Knowledge Triangle

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## From technology policy to innovation policy

- Integration of creation of excellence and opportunity capture
- Strong integration of SMEs
- Integration of the local and global issues and opportunities
- Combination of research for and about innovation, product centric innovations and entrepreneurship, experience gaining in the overall process, education in area

# Positioning of knowledge and innovation platform



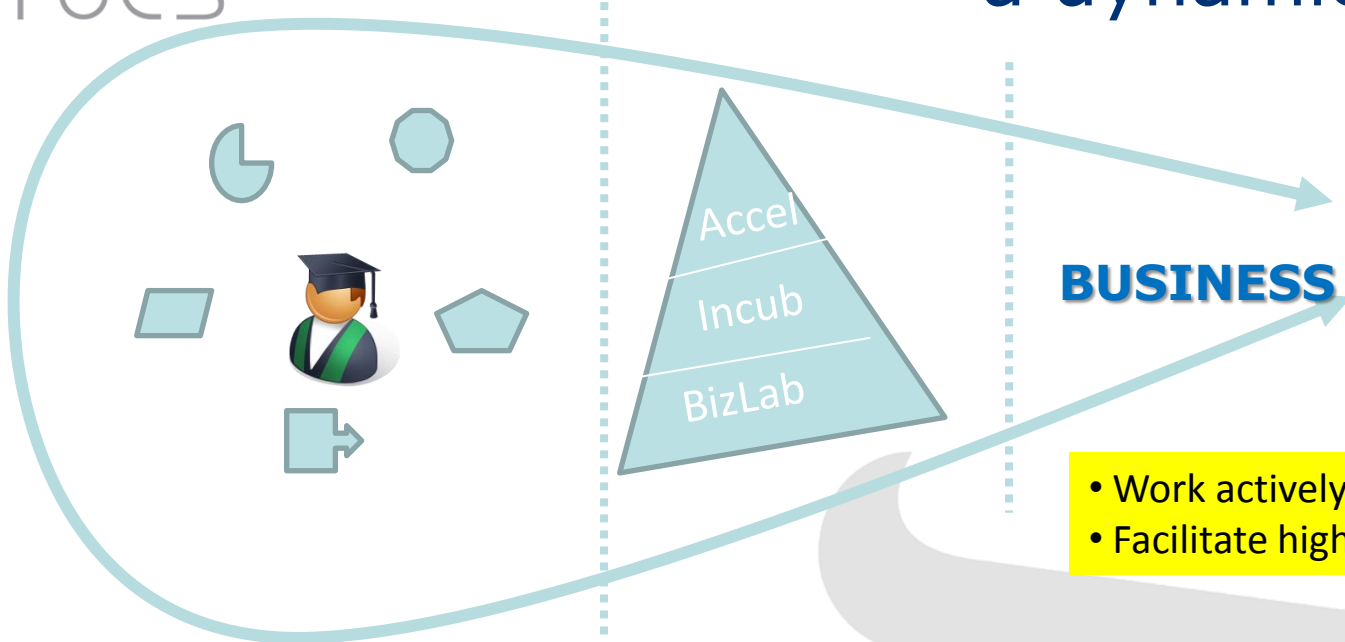
# Knowledge and Innovation Platform objectives

- Develop a working and concrete model for the cooperation between regional actors within innovation and entrepreneurship
- Move on so that each partner can focus on their own core business and activities while interacting with others
- Develop for each actor synergetic mission statements supporting the joint vision
- Reach a critical mass for promoting transfer of results from R&D to industry and/or new business
- Have a consensus on needed actions, projects, and organisational structures building up a strong alliance behind the joint vision to be introduced to political or economic decision making parties (regional, national, EU)
- Support efficient global networking of actors in order to support effectively their own specific activities

# Education in Knowledge and Innovation Platform

- Develop a systematic approach to
  - create awareness and inspire,
  - provide knowledge, hands-on experience, and tools on innovation and entrepreneurship,
  - screen, validate, and test ideas and innovations for their entrepreneurial potential
- Provide theoretical and hands-on training towards
  - to work in modern industrial or research institute organization as R&D manager, director or CTO with focus in technical leadership
  - to initiate own enterprise
- Technical leadership is needed when industrial and research institute R&D centers are transferring themselves from technology developer role to business accelerator role.
- Complements the current well focused technical/scientific training and offered to PhD students and post-docs
- Support individual researcher career development by creating a new type of post-doctoral period with focus of transferring knowledge and innovation to new business opportunities

# Innovation platform is a dynamic process



- Work actively with industry
- Facilitate high growth

## Platform actions

- Increase awareness of innovation
- Facilitate research with innovation potential
- Support innovativity with education
- Link with international academia
- Link with industry
- Benchmark

- Improve detection of business potential
- Improve quality and quantity of start-ups
- Link with industry
- Link with venture capital

# Education instruments in knowledge triangle

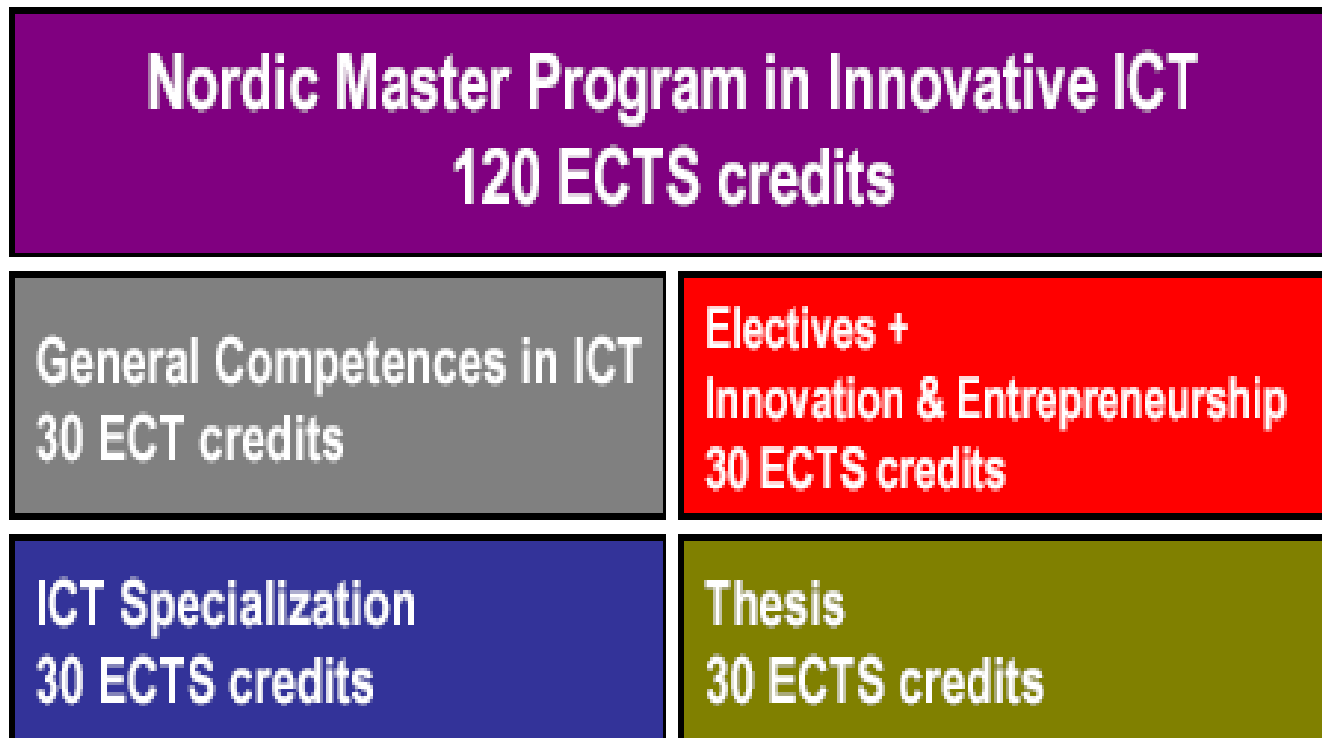
- Adding Innovation component to existing M.Sc. Education programs
  - Nordic Master School on Innovative ICT
    - International Information Security Master program
- Adding Innovation component to Ph.D. educational programs
  - PhD + MBA
  - Integrate industrial R&D managers via MBA program
- Integrate industries and business to execution of the programs in various ways via ownership of problems
- Internship and mentorship programs
- New Post-doctoral period with focus on research result transfer to commercial usage

# Nordic Innovative ICT Master program

- Based on existing 2-year M.Sc. Programs forming a cluster of programs with specific technical focus in ICT
  - Involves currently over 800 international students in participating universities
- Partners: University of Turku, Åbo Akademi University, Turku School of Economics, Royal Institute of Technology, Technical University of Denmark
- Slight modification to current program structure and focusing elective studies to innovation and entrepreneurship issues
- Content of the add-on module
  - ICT Venture Creation
  - Business Opportunities in ICT
  - Global Entrepreneurial Leadership
  - IPR and innovation processes

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## Structure of the Nordic Master Program in Innovative ICT



## Communication Systems

- Information security technologies and applications
- Network and device security
- Security technologies for embedded communication systems
- Agent based trust establishment
- Self-learning host for controlled routing and security
- Security and business platform for cloud computing applications

## Mathematics

- Cryptography
- Discrete mathematics

## Economics

- Information system security
- Organization level security issues; management
- Large-scale information system security and reliability
- Security of e-Health systems

# Structure of Inf Sec studies

20 ECTS from IT communication systems on system and network security

20 ECTS from department of Mathematics on cryptography

Curriculum extends to economics with focus on information security management and administration as well as security of information systems

Courses are advanced level (master's lvl)



# Computer networks and information security: 2009

**Basics of computer networks and security**

**ETT\_3057 Multimedia Networks (A3)**

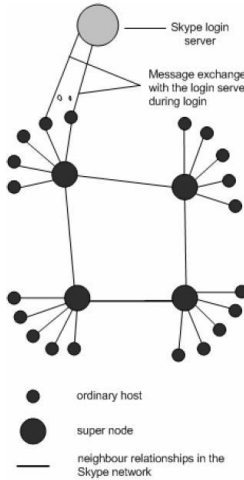
**DTEK1040 Advanced Internet Technologies (A3)**

**ETT\_3054 Advanced Networking for Embedded Systems (A4/A5)**

**DTEK8025 System and application security (A3)**



**ETT\_3072 Human element in information security (A4/A5)**



**Basics of cryptography**

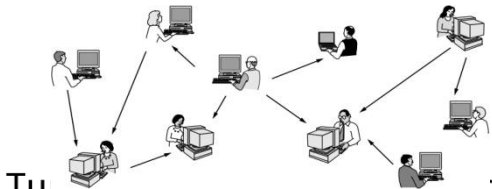
**DTEK8026 Organization level information security (A4/A5)**

**Cryptography I**

**Cryptography II**

**Seminar on cryptography**

**DTEK8027 Project on information security (A4/A5)**



**Bachelor of science in Information Technology 180 ECTS**

**TUCS Master of science program, major in Information security 120 ECTS**

**Information security  
technology  
20 ECTS**

**Advanced topics in  
computer networks  
20 ECTS**

**Software processes for  
designing secure systems  
20 ECTS**

**Cryptography  
20 ECTS**

**Communication  
system security  
20 ECTS**

**Security of  
healthcare systems  
20 ECTS**

**Discrete mathematics  
20 ECTS**

**Biotechnology for  
security applications  
20 ECTS**

**Corporate  
management and  
E-business security  
20 ECTS**