From research to business in the Swedish ICT Sector

Eric Giertz
Professor, Industrial Economics and Management, KTH
Founder & Chairman, KTH Executive School
LUCAS-dagen, Lund 2016-10-20
Reports

- Vinnova analys 2013:07
- Företag inom informations- och kommunikationsteknik i Sverige 2007-2011
- Vinnova analys 2015:06:
  - Small and beautiful – The ICT success of Finland & Sweden
- Vinnova analys 20016:07
  - Svensk konsultsektor i ny belysning
160,000 Employees in ICT companies in Sweden\n\textit{in different business logics}

- **Software**: 19%
- **Net Services**: 6%
- **Service and Maintenance of ICT systems**: 12%
- **ICT operations**: 9%
- **ICT consultancy firms (Commercial systems)**: 19%
- **ICT consultancy firms (R&D related)**: 10%
- **Hardware (Components)**: 9%
- **Hardware (Complete products and systems)**: 16%
Internet related Business models
A Swedish gaming industry
ICT Consultancy companies

semcon
ATEA
CGI
Logica is now part of CGI.
creuna
HiQ
Prevas
kvadrat
HotSwap
COMBITECH
TR:ITECH
T2 DATA
Understanding the Swedish saga through an historical exposé

• The foundation was build by very few strong actors!

• The turbulence around 2000 created new conditions

• Today we have an entrepreneurial and dynamic industry with many different actors!
"Developing couples"
Four parties plan from acorns to oak trees
A Swedish computer industry is born

- 1948 The public agency MMN is established at KTH
- BESK is completed in 1953 (the US, France, Britain and Sweden)
- SARA in 1957 *(Saab)* – D21 in 1962
- *Facit* leaves computers in 1963
- A new development couple 12,000 main frame computers (failed)

*Ericsson + Televerket = A very tight couple*

- 1970 *Ellemtel* – a joint venture is established
- Joint development of electronic and automated switching
- 1976 *Televerket* puts AXE in operation in Södertälje
- 1978 *Ellemtel* transfers AXE competence to *Ericsson*
Gov’t was involved in ICT restructuring

**Datasaab is established**
- *Stansaab* established 1971 (SRT, *Saab Scania*, SUAB)
- *Alfaskop* is a huge success
- SRT leaves in 1973
- 1978 *Stansaab & Saab Scania* computer division = *Datasaab*

**A state-owned PC industry is born**
- January 1978 – a meeting in Linköping
- August 1978 ABC 80 is introduced
- 1979 Government takes over

**Ericsson and Nokia takes over**

**NMT & GSM opens world market for Ericsson**
A New era starts in the 1990th

• **Televerket & Ericsson** are divorced
  – Liberalization in 1993
  – *Telia* AB makes IPO 2000
  – *Telia* acquires *Sonera* in 2002

• **Ericsson** ready to conquer the world!
  – *Ericsson* outsourcing late 1990s
  – *Ericsson* on top March 2000
% of GDP in 2000

Ericsson of Swedish GDP:
- Direct impact: 1.8%
- Indirect impact (sub-contracting & partnering): 1.6%

Nokia of Finnish GDP:
- Direct impact: 4.0%
- Indirect impact: 3.1%

The Economist

The Economist

WORLD RECORD!?
Share of ICT Sector Value Added in 2000, %

Swedish ICT Sector

- Swedish ICT Sector

Finnish ICT Sector

- Finnish ICT Sector

- Other ICT firms' share

- Indirect share of Ericsson/Nokia

- Direct share of Ericsson/Nokia

- Swedish ICT Sector

- Finnish ICT Sector
An explosion in 2001

- **Ericsson survived when bubble burst**
  - *Ericsson* hit by 3G licensees
  - Leaves handsets to *Sony Ericsson*
  - More than 8,000 consultants are kicked out in 2001
  - Saved by new issued shares in July 2002
  - Employment in Sweden from 43,000 to 21,000 in four years

- **A diversified ICT Sector is born**
The ICT sector as a percentage of GDP

- Finland
- Sweden

- NMT
  Cf. Ch 2

- GSM
  1st disrupt

- The 2nd disruption
  Cloud computing
  Mobile Internet
  Big data, analytics
  Tech convergence

- Worldwide:
  From monopolies to competition

- Services, software, deeper diffusion of ICT in using sectors

- In wireless network eq.:
  1. Huawei
  2. Ericsson
  3. Nokia
     (Siemens; Alcatel-Lucent)
In 2012 Sweden had 6 times as many ICT-companies but only twice the number of employees.
Concentration to *Stockholm* and universities

- Software
- Net Services
- Service and Maintenance of ICT systems
- ICT operations
- ICT consultancy firms (Commercial systems)
- ICT consultancy firms (R&D related)
- Hardware (Components)
- Hardware (Complete products and systems)
Internet-related business models
Internet-related business models

- Proof of Concepts
- Industrial exits
- Loved by Business angels & VCs
- Employ rather few people
- Great importance for the use of ICT in other sectors of industry
- Technology based B2B-companies serve many customers in consolidated industries
Finland vs Sweden: Part II

Finland

- SuperCell
- Rovio
- Fingersoft
- Other Companies

Sweden

- Other
- Massive
- Stardoll
- Paradox
- Avalanche/Fatalist
- EA DICE
- King
- Mojang

Comparison:
- Finland: Mobile focus vs Sweden: Broad footprint
- Finland: Super concentrated vs Sweden: Concentrated
ICT permeates many sectors

Three aspects in focus here:

– **ICT consultants** as drivers of change

– **Embedded systems** in engineering

– **Internet of things** - cloud computing
The importance of R&D-related Consultancy
R&D related ICT Consultancy firms

Typical customers:
Engineering Corporations making complex & assembled products

• Developing software components (embedded systems) in customer products & systems

• Developing software & systems for production processes
Is there a Swedish paradox?

• Sweden tops European Innovation Scoreboard 2016
• Stockholm top ranked among European regions in the World Competitive Index of regions in 2014. (# 6 in the world)
• World Economic Forum ranks Sweden number 6 in Global Competitive Index 2016-2017 edition