

Infrastructure implications of digitisation: consequences for planning the health estate

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Content

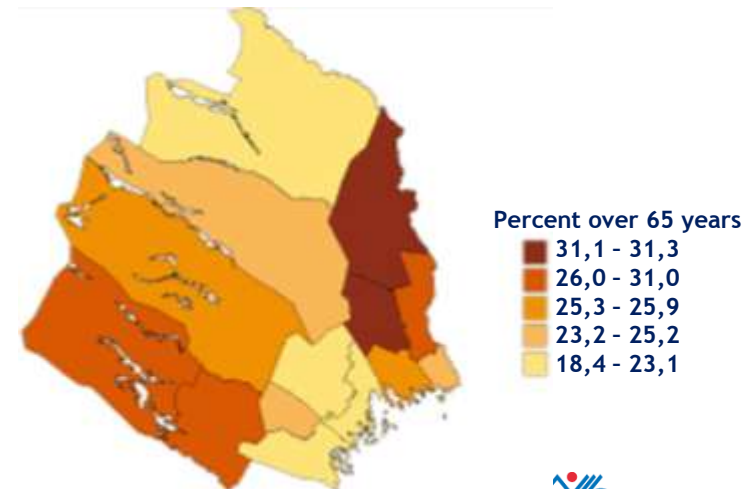
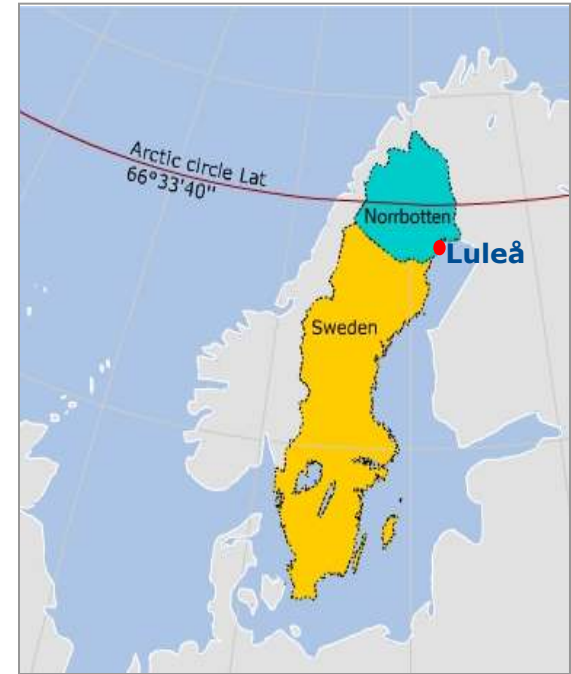
- Norrbotten County
- Our infrastructure for delivering health services
- Examples of services



The county of Norrbotten

- an exciting part of Europe

- **Area:** 98 911 km² (25 % of Sweden)
- **Population:** 248 422 (2,6 % of Sweden)
 - Most sparsely populated area of the EU (2,51 Inh./km²)
 - Extensive ICT structure
- **Targets investments area in Sweden**
 - Highest export value per capita in Sweden
- **Growing elderly population among a decreasing overall population**
 - 19 200 less since 1994
- **Demographic change**
 - 30 % of the healthcare professionals will retire until 2019
- **5 hospitals, ~39 health centres, 34 dental clinics, 7,500 county council employees**



Our vision, our motto...



The Council underlines the need for **further political leadership** and to **integrate eHealth into health policy** in order to develop eHealth services on the basis of public health needs.

Assembly of European Regions - AER



- The Assembly of European Regions (est. 1985) is the largest independent network of regions in the wider Europe.
- Bringing together over 270 regions from 33 countries and 16 interregional organisations, AER's mission is to:
 - Promote the principle of subsidiarity and regional democracy;
 - Increase the regions' political influence within the European institutions;
 - Support the regions in the process of European enlargement and globalisation;
 - Facilitate interregional cooperation across wider Europe and beyond



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Our digital infrastructure – The broadband concept

- Europe's biggest open high-speed fibre-based network to business and the public services
- Which increases the range of services and contributes to an economic growth and development at the region
- Owned by the 14 municipalities in the County Norrbotten and the County Council of Norrbotten
- To increase the usage of the network for business and public sector so that broad range of services will be created
- To act as an enabler for regional development



KIRUNA

LULEÅ

OSLO

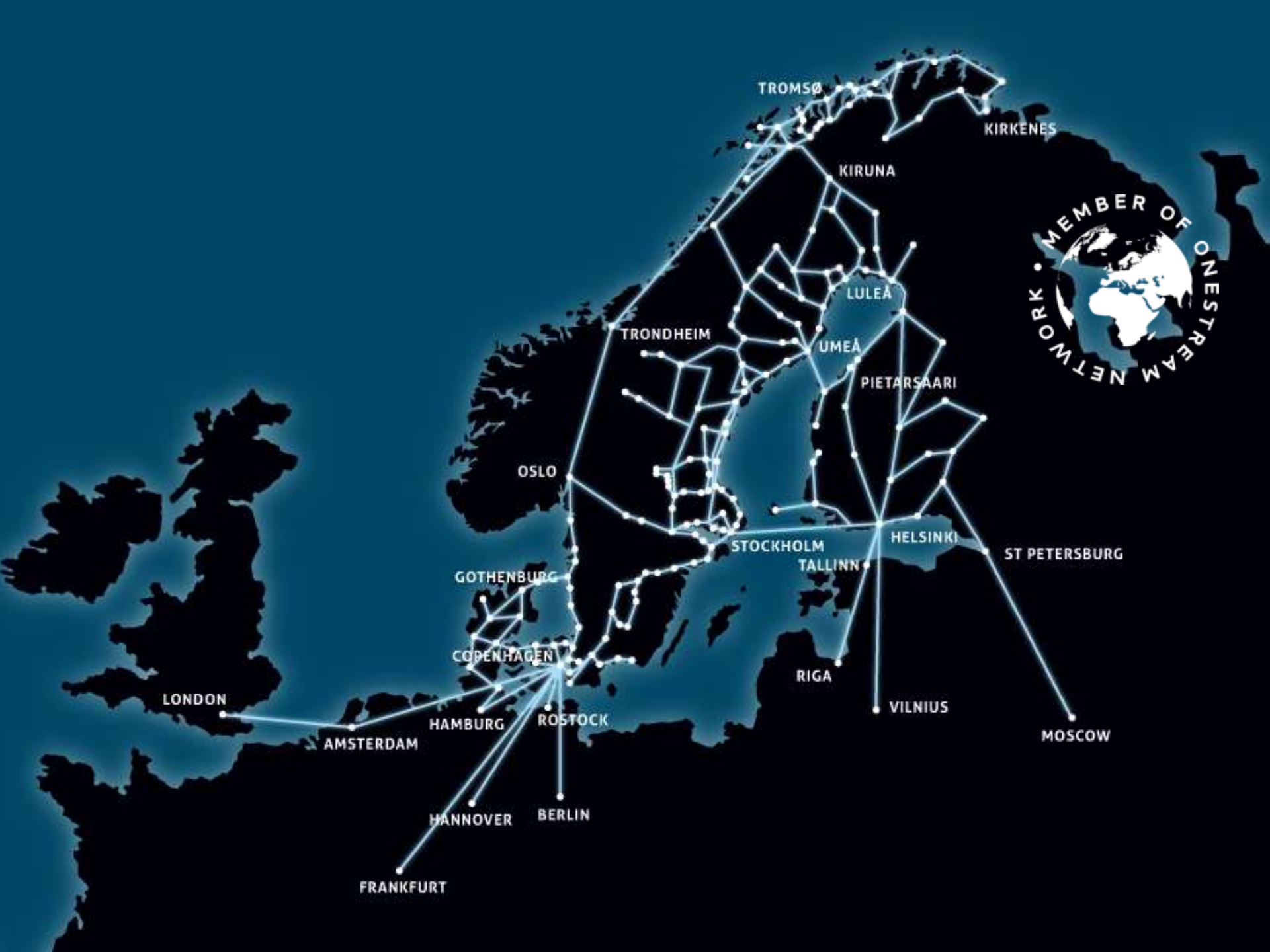
STOCKHOLM

HELSINKI

COPENHAGEN

LONDON

AMSTERDAM



3,000 KM DIGITAL MOTORWAY

- Totally is 650 million SEK invested in broadband infrastructure in Norrbotten
- Investments in the regional backbone was about 85 million SEK
- Years 2000 - 2007
- About 3000 km fibre optic network has been built
- Redundancy



OPEN NETWORK

- Different players of the market gets access to the network on equal terms
- More service provides
- Open urban networks creates competition
- Competition creates a better range of services and freedom of choice

POLITICAL ENGAGEMENT

- The political decision-making process

ENGAGEMENT IN VILLAGES

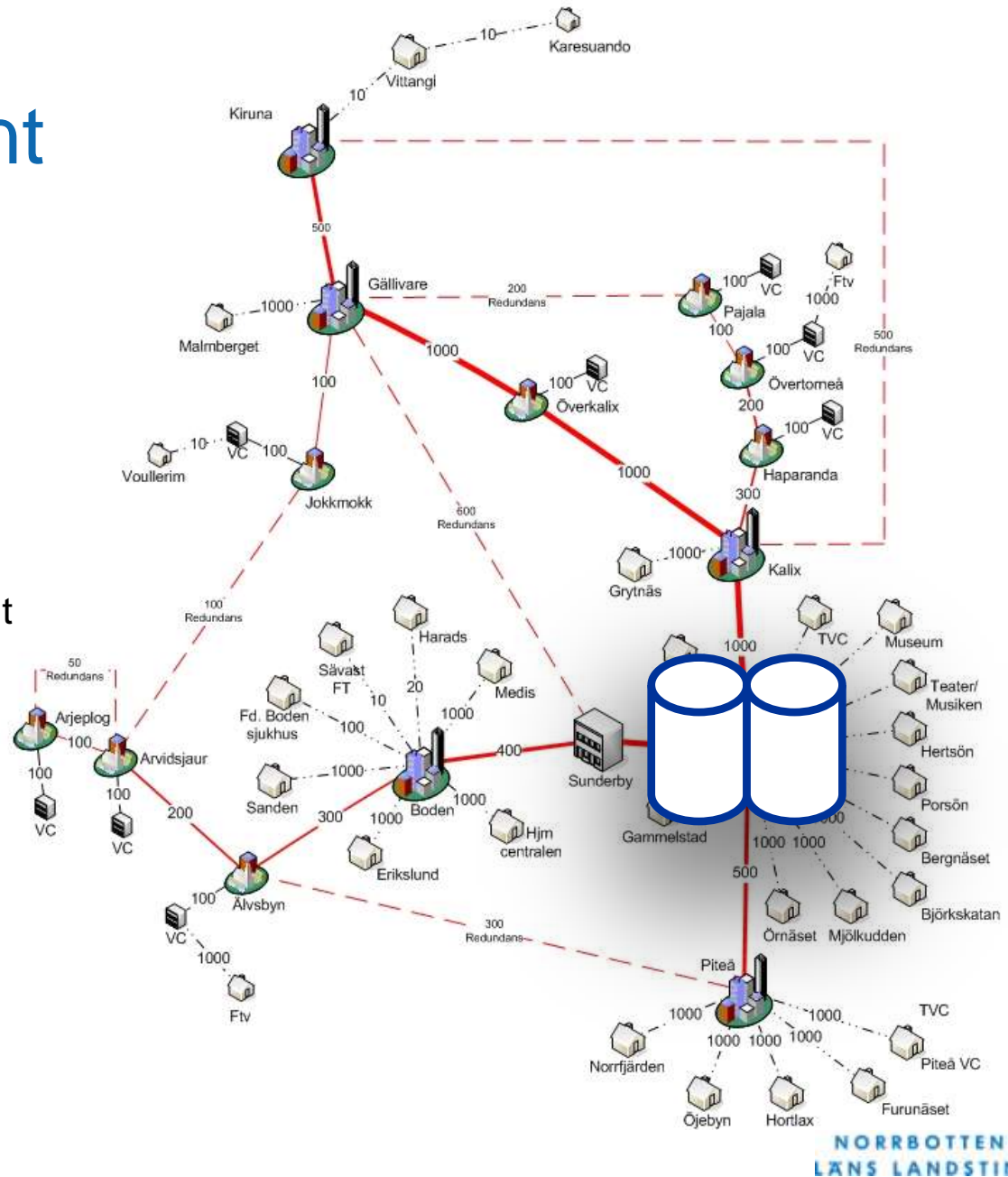
Inhabitants contributed with their own work

- The establishment of the association
- Information meetings
- Digging



A complex IT-environment

- 7 000 pc:s
- 400 servers
- 6 000 IP-phones
- 120 000 GB Storage
- Numerous medical equipment
- Centralized server/Storage
 - One EHR
 - One PACS
 - One IP-telephony switch
- Fully integrated
- 24/7/365



Important enabler and regional strength - one single EHR system throughout the whole county, (VAS)

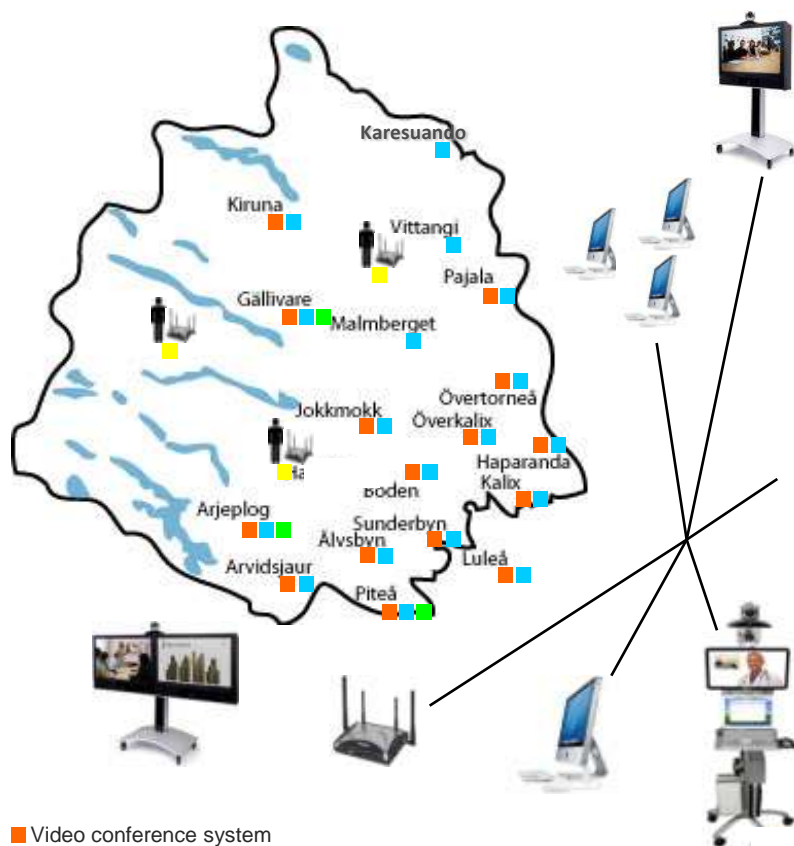
- *Own developed and owned Integrated Healthcare System*

- Built around the needs of the patient
 - Chronic disease treatment/daily care, near the patient
 - Specialist care centralised in the county
- Unique functionality (One health care record per patient) and used by all categories of health care personnel irrespective of role/specialty throughout the County
 - 100 % internal e-referrals
 - 100 % e-prescriptions
 - Electronic Discharge planning conference with all 14 municipalities



A joint video conference platform

Operation and management



- Norrbotten County Council
- All 14 Municipalities
- Association of Local Authorities
- IT Norrbotten

20 000 operating hours (video calls)

- Video conference system
- Pc system
- Mobil cart
- In patients home

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Mobile Equipment

Care in patients home - Neonatal



Physiotherapy at a distance



Distance consultations

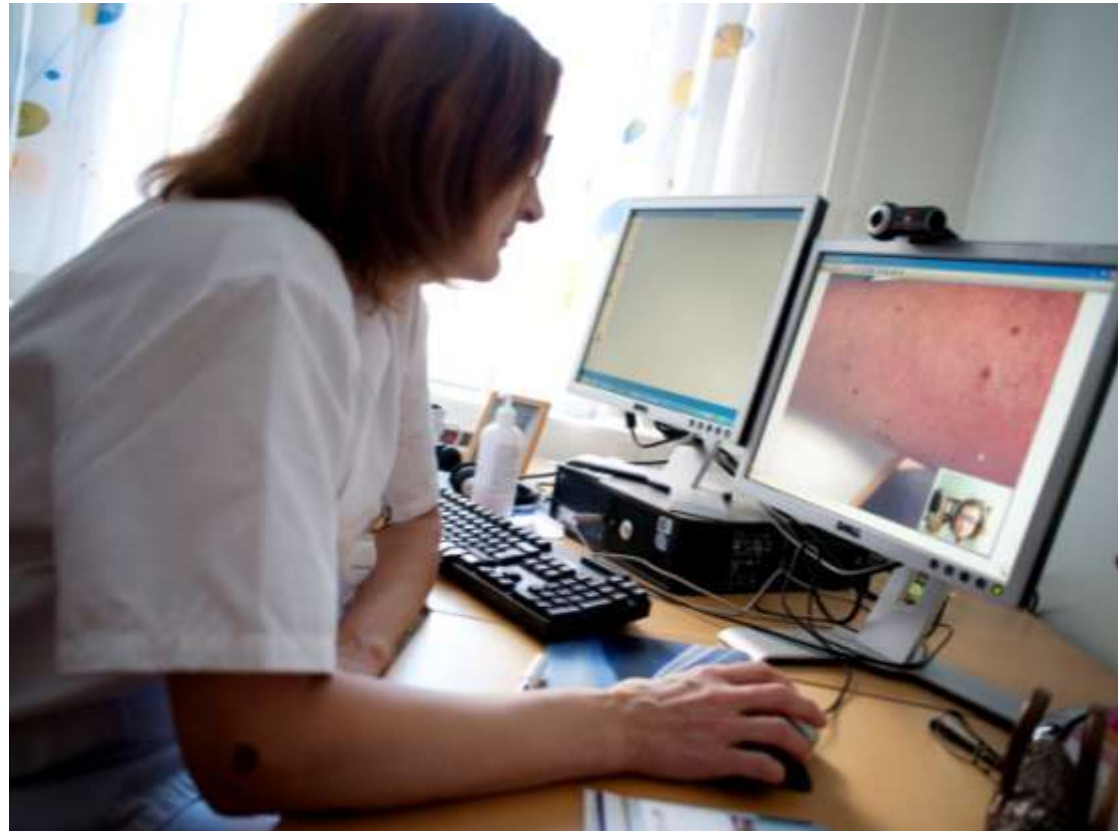
Psychological therapy



- Within the County
- Stockholm
- Copenhagen

Dermatology, specialist consultations

- Dermatologist
- General practitioner
- Patient



Multipart bridges

Discharge planning



- Hospital
- Health Care Center
- Community Care
- Patient & family

Children Cardiology

- Fast second opinion about newborn from children cardiac specialists at the academic hospital in Umeå
- Simple solution using regular ultrasound machine connected directly by Axis video camera
 - Ultrasound available through internet
 - www-adress
 - Password



Multidisciplinary rounds

Between Sunderby Hospital,
Sundsvall hospital, Östersund
hospital

and

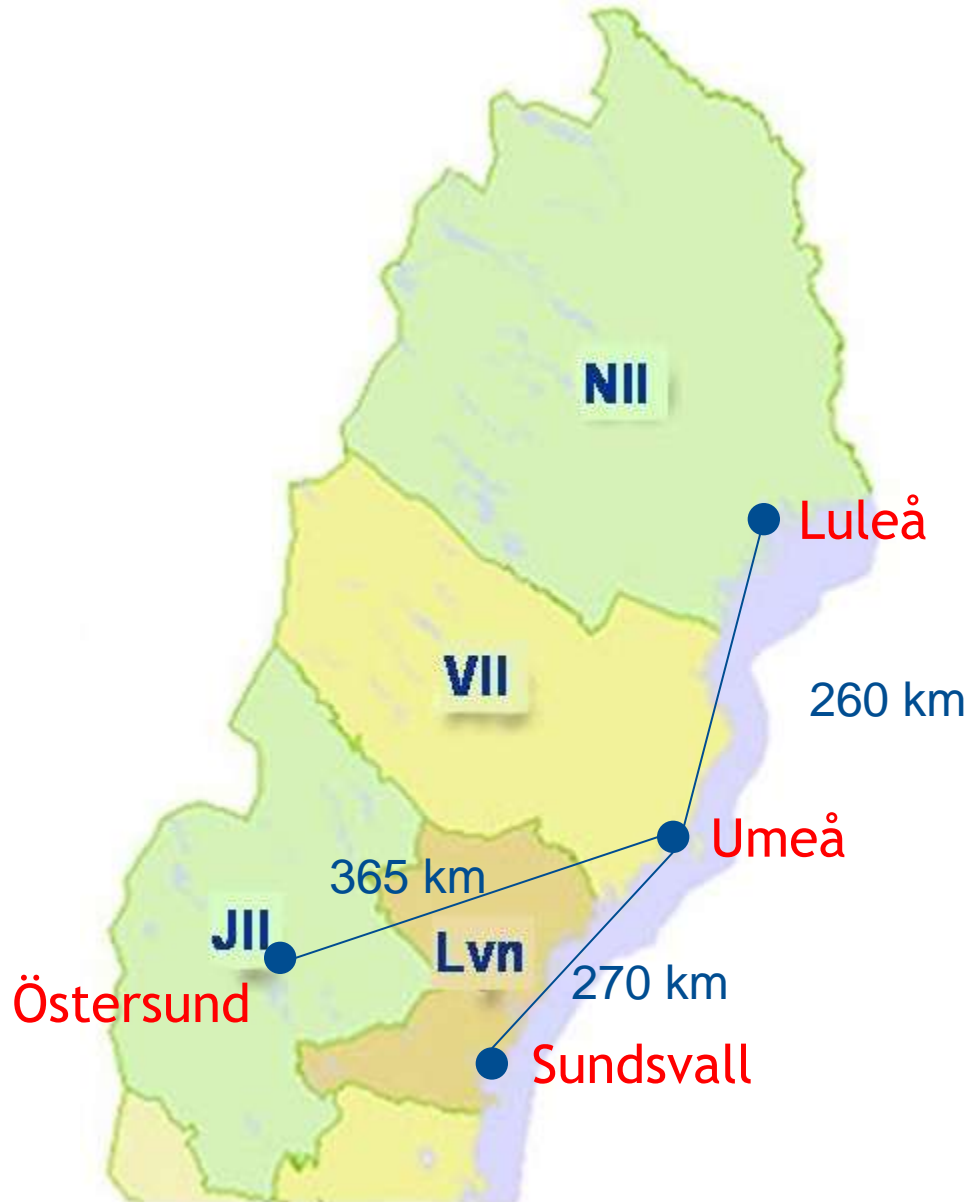
Regional hospital in Umeå

- Radiologist, pathologist,
referring doctors...



Regionalization of medical training At Sunderby Hospital

- A vital future for the entire county



Medical regionalization of medical school at Umeå University to the Norrbotten, Jämtland and Västernorrland counties (4 places)



Conclusion

- A clear vision and objectives for future health care in the regions
- A powerful redundant infrastructure
- The competence and knowledge at regional politicians and decision makers
- Political courage - make difficult decisions in an decreasing economy
- Shift focus from organisation to patient
- Implement the e-health strategy on local/regional level
- From small local pilot projects run by champions to larger interventions
- New reimbursement models
- Knowledge and experience of change management on all levels



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