Towards a borderless European Health Information Space

Gérard Comyn, Head of Unit eHealth

DG Information Society and Media
European Commission

Who are we?

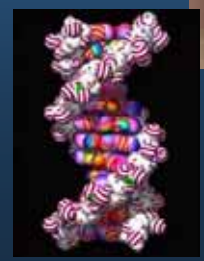
- European Union office established in 1989
  - **funding R&D in eHealth, 800 M$, 400 projects worth >1.2B$**
  - **supporting deployment in Member States**
- One of the first agencies worldwide focusing on eHealth (medical informatics + telemedicine)
- The vision: “eHealth enabled Continuity of care” (Since 1994)
- Major focus in 90’s: Regional Health Information Networks (RHIN), Electronic Health Records (EHR)
- Today’s focus: Personal health systems, Biomedical Informatics

eHealth – ICT based Application and services in Health sector

Well known fact: Health sector is facing great challenges

- Ageing population, rising costs
- Oriented mainly to treatment
- Not geared to manage risks

Less known fact: *e*Health is a tool for these challenges



- Improves productivity when combined with proper organization and skills
- Supports prevention and personalisation
- “in silico” lab will enable prediction

European Commission & eHealth

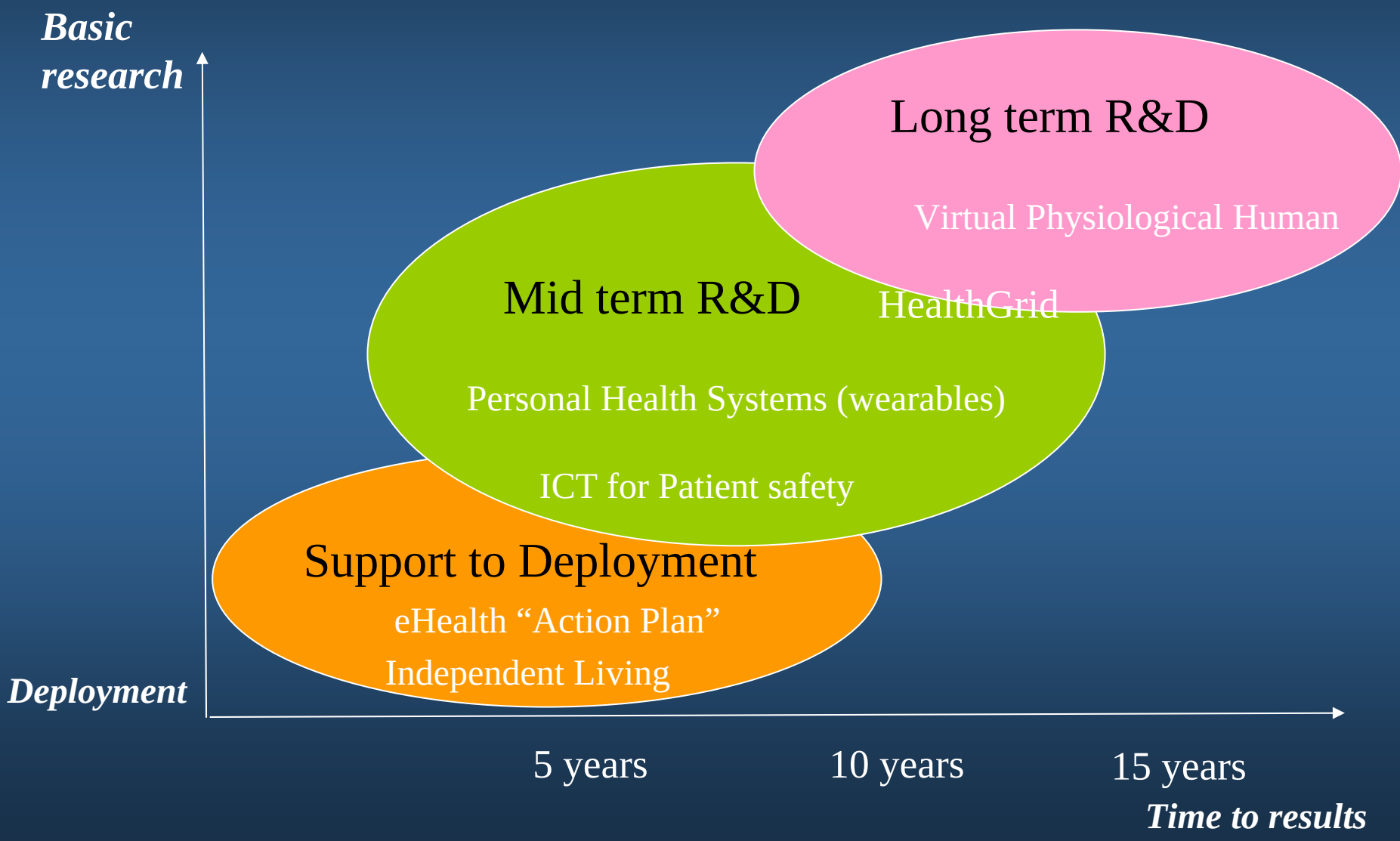
I) Deployment – Improving Access, Quality and *P*roductivity

II) Mid term research – *P*reventive & *P*ersonalised medicine

III) Long term research – *P*redictive medicine

http://europa.eu.int/information_society/activities/health/index_en.htm

ICT for Health – Summary of eHealth Activities and Plans



Mid term Research

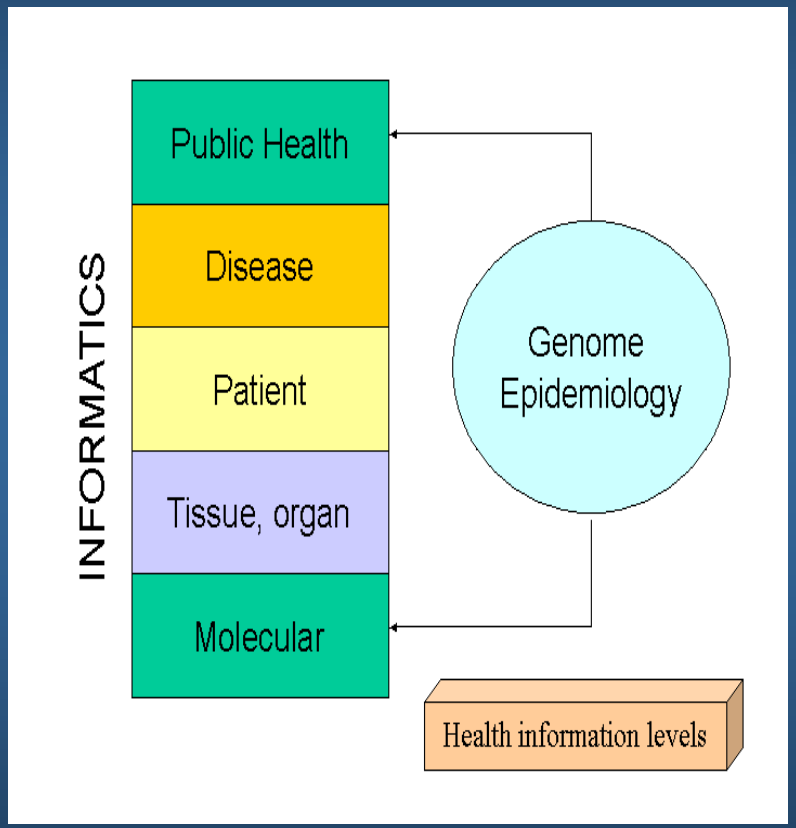
Personal Health Systems

- **Prevention & Personalisation**
  - *citizen empowerment to manage own health status*
  - *emphasis in preventative lifestyle*
  - *management of chronic diseases*
  - *independent living*

- **In the form of**
  - *Wearable, implantable, portable systems*
  - *Point-of-care systems (biochips)*

Long term Research (1/2)

Predictive Medicine



1. **Integrating** information relating to disease from the level of molecule, cell, organ, organism, population

2. **Modelling and simulating** disease related processes and human physiology

3. **Predicting risks** and developing more effective treatments or prevention programmes

Long term Research (2/2)

Virtual Physiological Human – Disease simulator

Computational framework for multilevel modelling and simulation of disease processes

Libraries of data and toolbox for simulation and visualisation

Patient specific models from biosignals and images including molecular images

Come and participate at open event
ICT for Biomedical Sciences,
29-30 June, 2006, Charlemagne, Brussels

http://europa.eu.int/information_society/events/ict_bio_2006/index_en.htm

I. Support to Deployment

Current situation in EU and

European Commission Action Plan on eHealth

http://europa.eu.int/information_society/activities/health/index_en.htm

eHealth in Europe: Opportunities

Principally:

- Better efficiency and effectiveness in healthcare
- Better quality healthcare
- Better access to healthcare

But also undoubtedly:

- A more dynamic *e*Health market for Europe
- An opening-up of cross-border *e*Health services
- Support for ongoing reorganisation of healthcare in Europe

20 Years of eHealth in EU

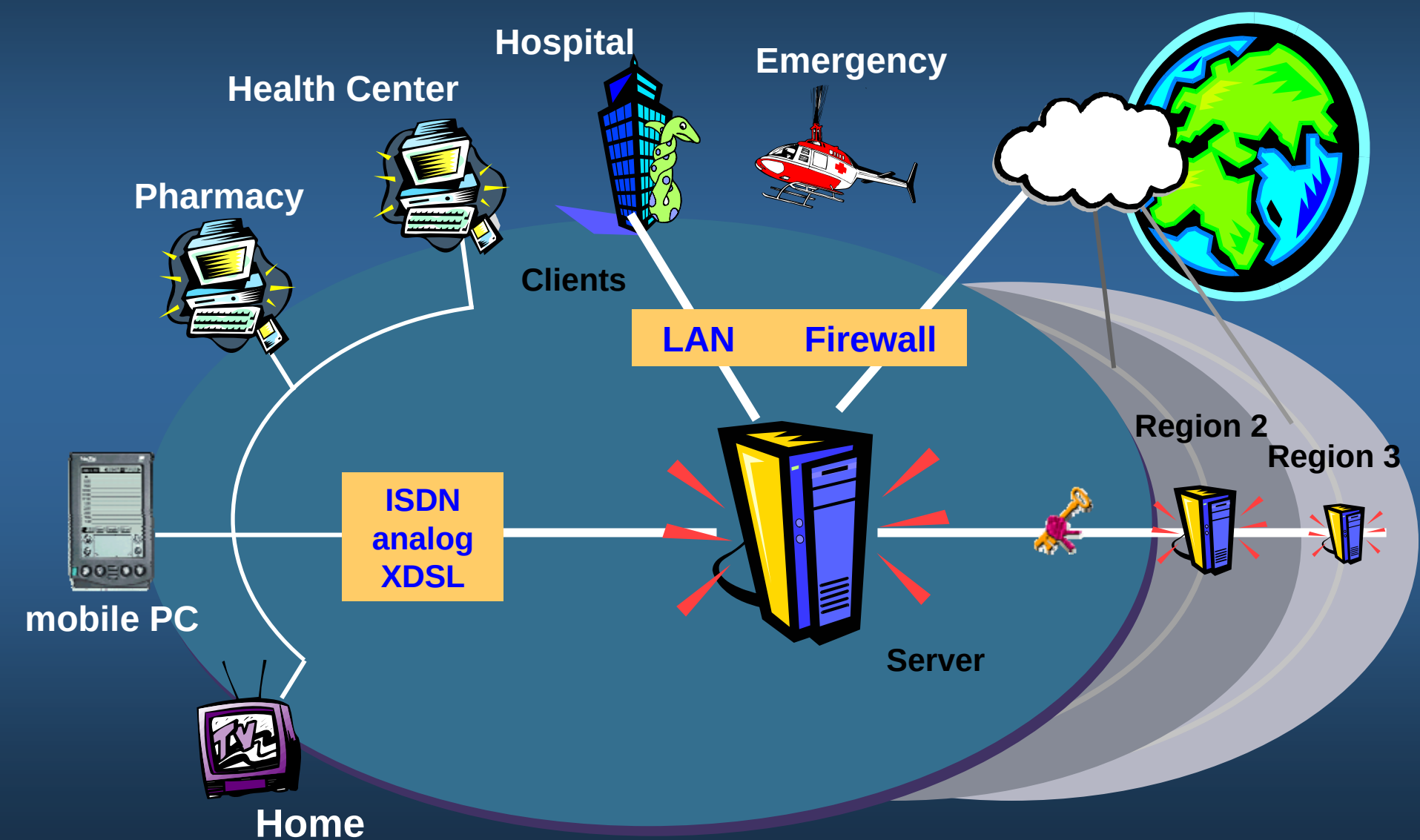
PAST 10 years (1991-2002)

NEXT 10 years (2003-2014)

’89-’91	’91-’94	’94-’98	’98-’02
Computer Applications for Doctors Telemedicine systems and services		Regional Health Info Networks Home-care systems Personal Health Systems	
Budget 20M €	Budget 100M €	Budget 140M €	Budget 200M €
Projects 30	Projects 63	Projects 158	Projects 125
Results **Feasibility Study**	Results **AIM Community**	Results **1st batch of Products**	Results **EU Health Telematics Industry**

How many eHealth applications developed in R&D projects are deployed and real life solutions?

Vision since 1994: Continuity of care
Tools: EHR & Regional Health Networks



Challenges for wide adoption of eHealth

Technological

- **Interoperability** between different information systems
- **Standardisation-** currently many (pre) standards on EHR
- **System and Network Security** – to address the major issue of the public: PRIVACY, TRUST and CONFIDENCE
- **User friendliness –** data input/output still not fast enough

Non-technological

- **Legal and/or regulatory framework(s)**
- **Incentives,** e.g. Reimbursement of eHealth services
- **Leadership** –long term commitment of authorities
- **Industrial issues** –collaboration between industry to achieve transparent market, e.g.labelling, certification

Creating Success & Market

- Health Expenditure 8.5% of GDP in EU and employs 9.3% of workforce
- eHealth ~2% of Health Expenditures, potential to reach 5% by 2010
- More than 15% market growth with impact on jobs, productivity gains
- eHealth industry - largely SMEs that would greatly benefit from Health Information Space and interoperability framework
- EU leads the eHealth developments and markets – deployment of electronic health records in primary care and healthcards

Strengths of the EU market

- High quality of research in area of mobile devices (Nokia, Siemens, Ericsson…) and medical devices (Philips, Siemens, AGFA etc.)
- Excellent theoretical approach of standardisation (EHR standards – WGs of CEN TC 251)
- Good adoption of EHR for GPs (>80%*)
- Environment is favourable to the development of the ICT in Health (UK/NHS, FR- Personal Medical Record, DE - Health cards, ALL – Regional HIS)
- Funding available through research programmes, structural funds, national programmes, pre-accession funds (BG, RO)

*Eurobarometer EB 126)

Weaknesses of the EU market

- Scattered research
- Different languages
- Lack of uptake of EU standards in ICT for health
- Different speed of investments in EU countries
- Different levels of political commitment
- Lack of evaluation of the economic impact of ICT for health
- Lack of awareness concerning the potential benefits
- Lack of harmonized legislation at EU level concerning ICT for health

Opportunities for the market of ICT in healthcare in Europe

- Communication: COM(2004) 356 final
  'e-Health – making healthcare better for European citizens: An action plan for a European e-Health Area'
- Research in innovative fields (biomedical informatics, disease simulator, personal health systems, risk management, semantic interoperability)
- Increasing political interest for ICT for Health
- National plans and roadmaps for the implementation of ICT for Health
- Increasing interest for ICT for Health Congresses and workshops
- Increased awareness of general public on Patient safety issues (see recent Reports in UK and France

Threats for the market of ICT in healthcare in Europe

- Market driven by US players (US standards, ICT industry, terminology)
- Funding of interoperability and deployment larger in US, CA, AUS
- Lack of consensus at EU level (interoperability of ICT for Health applications)
- Slow market growth and weak research funds available

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EU has stepped up its effort in promotion and support to deployment

eHealth ACTION PLAN COMM (2004) 356

Ministerial eHealth Conferences

2003 Brussels, 2004 Cork, 2005 Tromso, 2006 Malaga

eEurope and i2010 initiatives

europa.eu.int/information_society/activities/health/policy_action_plan/index_en.htm

Creating a borderless European Health Information Space

- **Fragmentation of ehealth solutions in Europe**
  - 25 markets
  - No mobility for the patients
  - Sub optimal use and sharing of information for health care and research
- **VISION**

A single health information space (eHealth Area) that

- enables better quality care
- mobility of patients
  - citizens should have access to best care anywhere in EU
- growth of eHealth industry
- accelerates knowledge discovery and innovation

Communication: COM(2004) 356 final 'e-Health – making healthcare better for European citizens: An action plan for a European e-Health Area'

The main objective is to accelerate awareness and uptake of beneficial eHealth systems & services

- Describes the vision and the benefits of eHealth
- Describes the major challenges and lessons learnt
- Points to specific actions for both Member States and European Commission

- Approved by Commission, 30 April 2004

http://europa.eu.int/information_society/activities/health/policy_action_plan/index_en.htm

Approach, Constraints

- **The European « model »**
  - Bottom-up, from national experience to European solutions
  - Role of « best practices »
- **Impressive diversity of national situations**
  - European vs National vs Regional vs local
  - Different strategies, different models of health systems, legal frameworks, cost reimbursement
- **Richness of local know How**
- **Increasing awareness that action at European level is needed**

SWEDEN

Sources of information on eHealth developments :

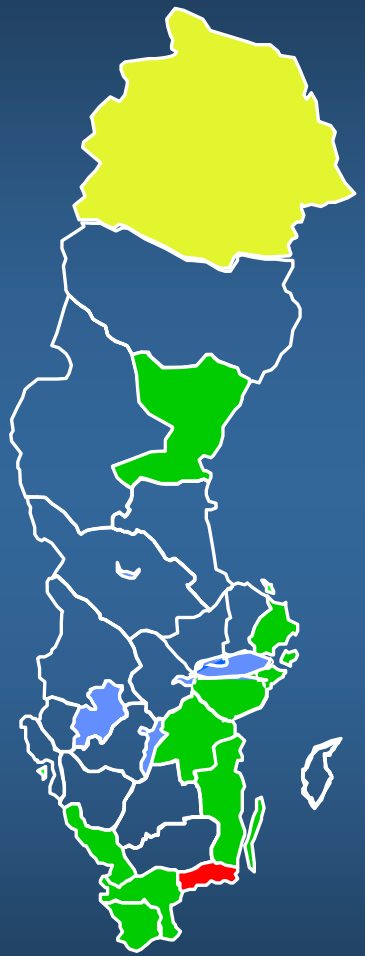
www.carelink.se — National cooperation to develop the use of IT in Swedish healthcare

Examples of real life eHealth solutions :

ePrescriptions nation wide: from 6% in 2000 to 27% in May 2004 to 48 % in May 2005. (www.e-receptstockholm.se)

Sjunet: Network connecting all Swedish hospitals, primary care centres and many health services. Cost benefit of Sjunet is estimated at ~8 million euro/year.

SWEDEN – e-Prescriptions

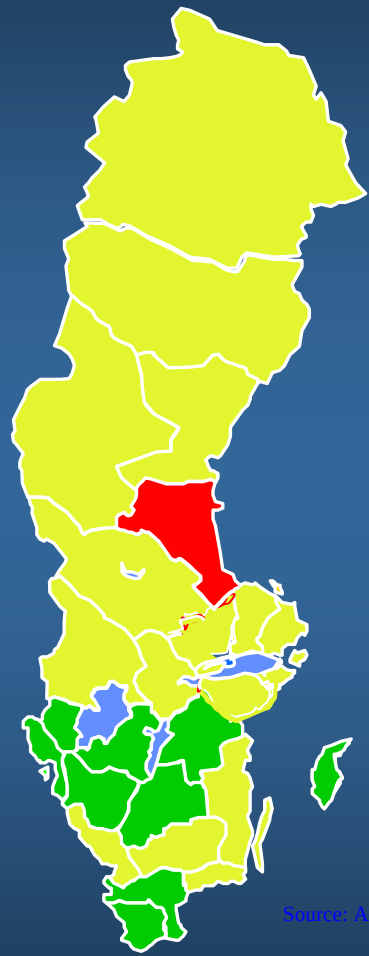


50% or more

26% - 49%

1% - 25%

0% / < 1%



Source: Apoteket AB

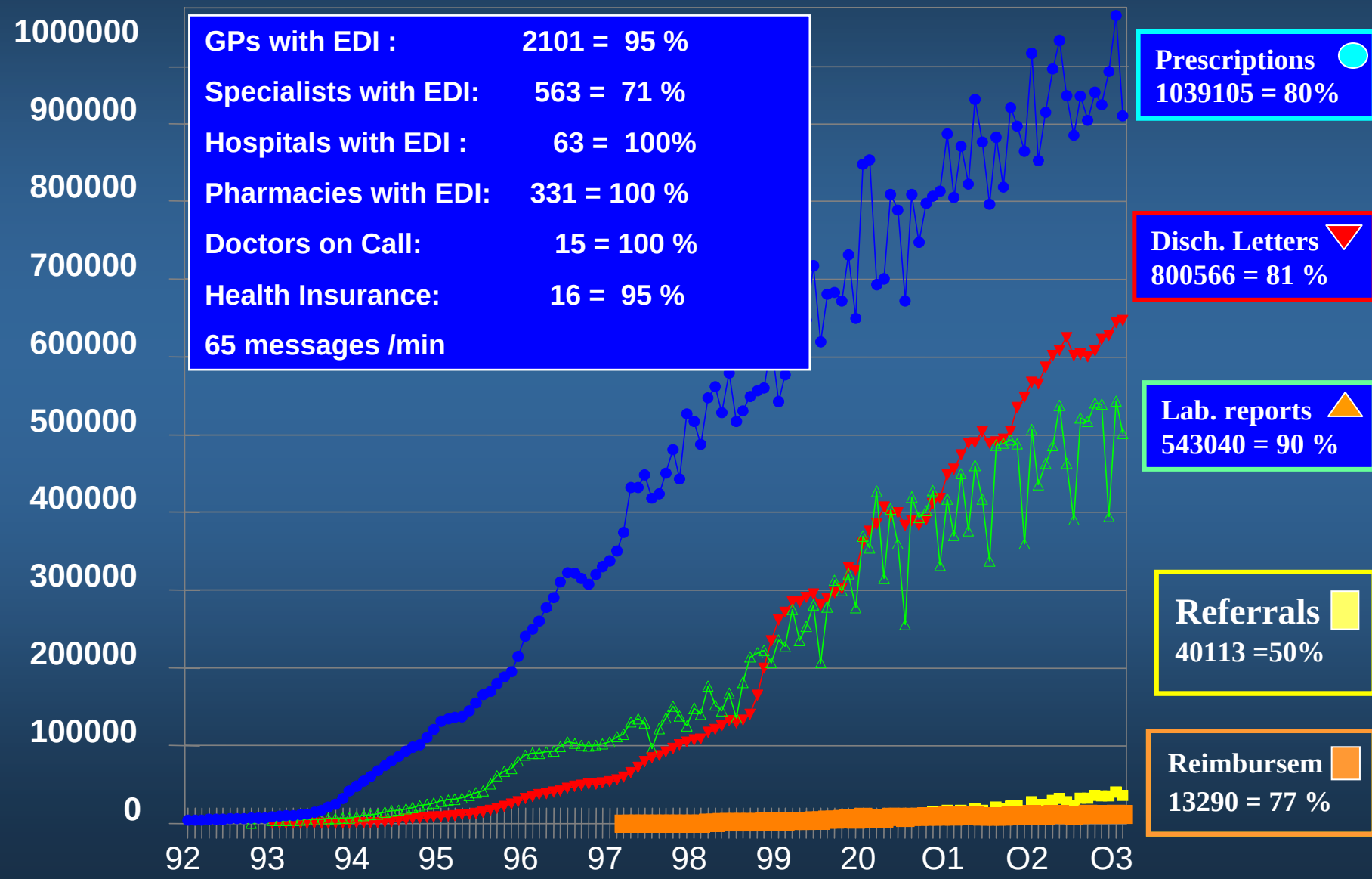
August 2000
100 000 e-prescriptions

April 2005
1 000 000 e-prescriptions

MedCom, the national network:

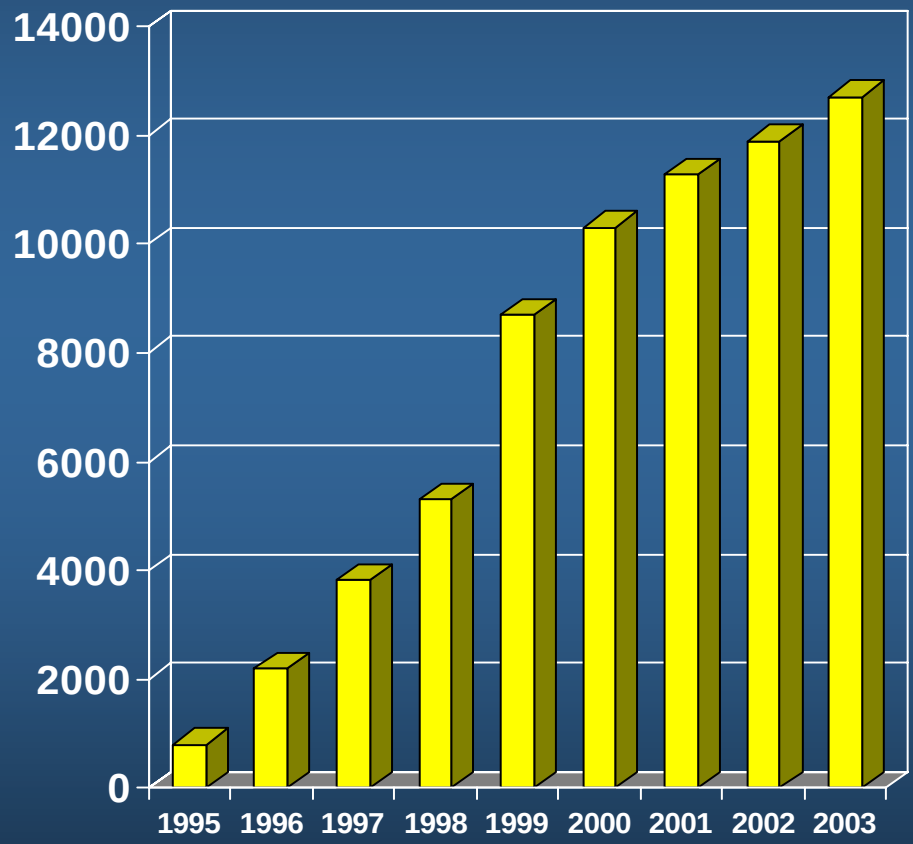
3.5 Mil Euro savings only on e-referrals

www.medcom.dk



MedSERVE – Evolution Belgium (2003)

- > 12.500 users daily
  - Text - Lab results, Surgery reports, RX reports, Notification of Admission, Discharge letters, Examination reports, Referral letters
  - Image – Anatomo Pathology - Radiology
- > 4.000.000 messages/month



Bernard Wathelet

Real life examples of eHealth solutions

Boario Home Care (Italy) – telecardiology services:
47% reduction of Emergency Department referra
95% reduction of cardiologic consultations

NHS Direct online – 24x7 eHealth services to public
http://www.nhsdirect.nhs.uk/

Health cards – Net@CARDS (Germany, France, Italy, Austria, Greece, Czech Republic, Slovak Republic):
Interoperable cards across countries
http://www.netcards-project.com/pilots.php

For collection of real life eHealth solutions see
eHealth – Current situation and examples of implemented and beneficial eHealth Applications, IOS Press, vol 100, (2004)

www.health-impact.org

SLOVENIA –Health Information Network

Major Development Steps

Extensive proliferation of computer literacy of HC providers (acquisition of 2700 PC's)	1992/1993
Infrastructural databases (insured persons, HC providers, drugs, obligors, …)	1993/1996
EDI Messaging	1994/1996
Introduction of the health insurance card system (HIC, HPC, SST network, unified API's, upgraded application environment at HC providers)	1996/2000
Health Sector Management Project	2000/2004

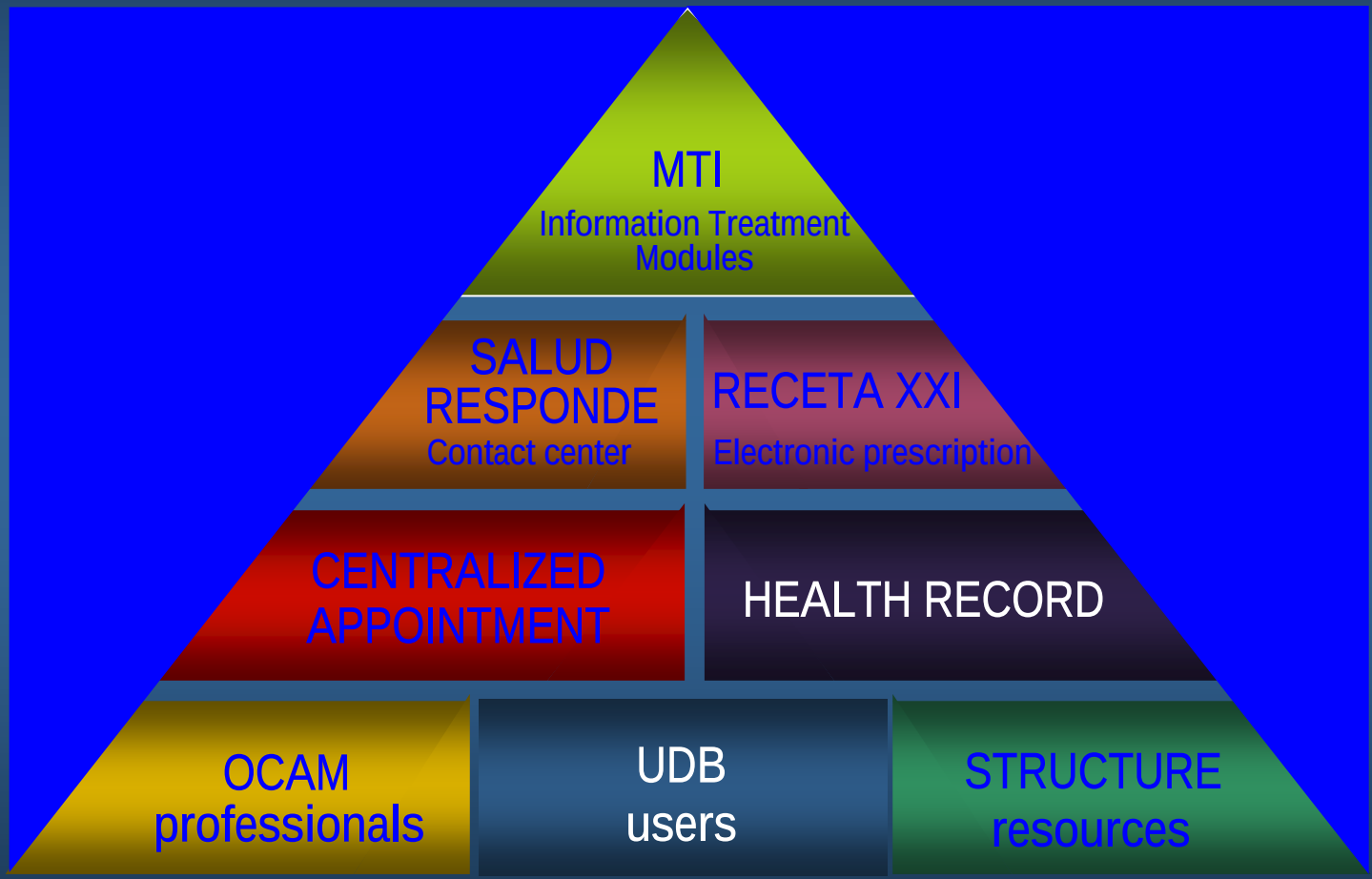
SLOVENIA –Health Information Network

Development in Progress -Medication Management

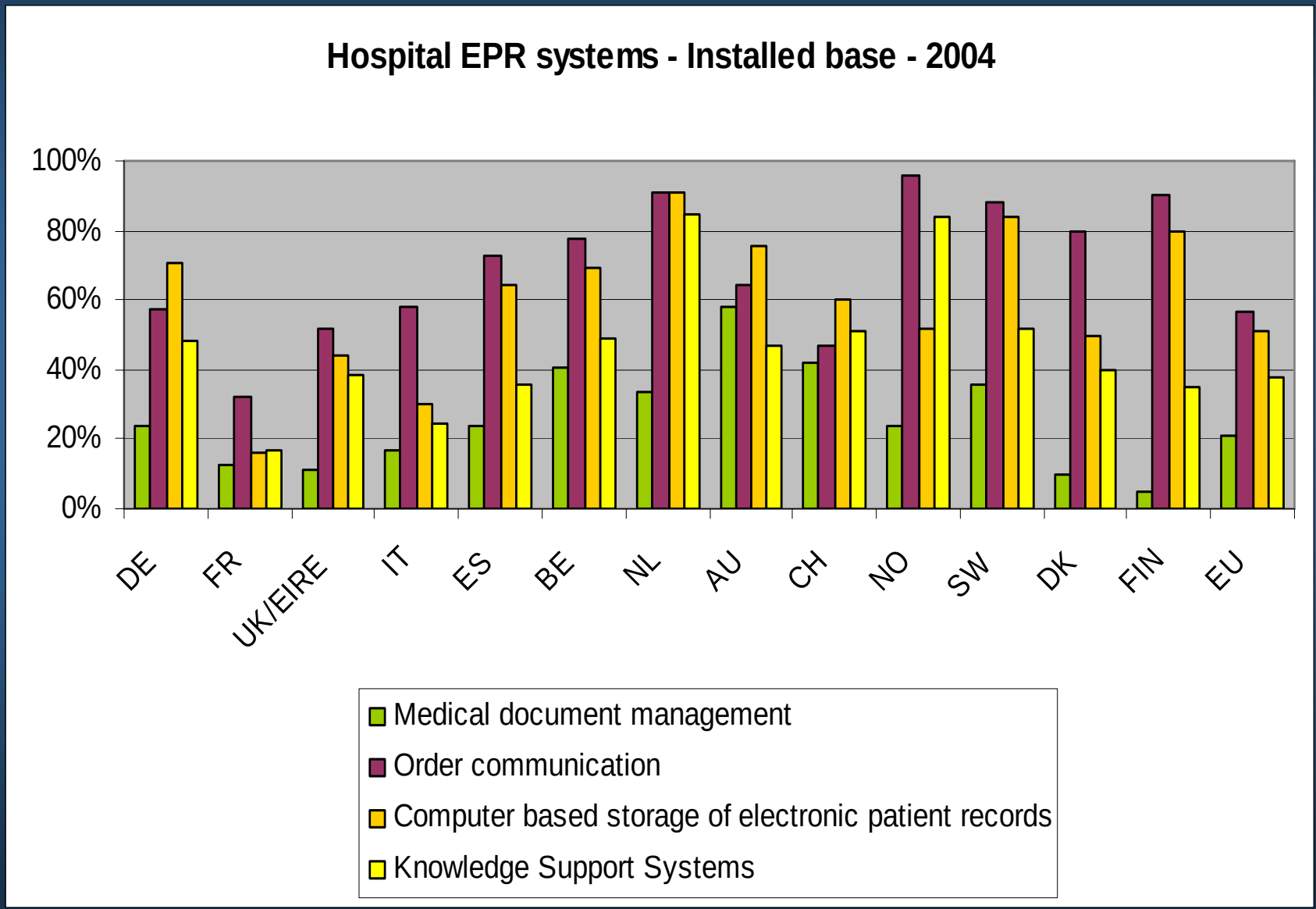
- **Phase 1: recording of drugs issued on prescription onto the health insurance card**

- **Phase 2: e-Prescription Project ➔ Substitution of paper prescription forms for an electronic form, implementation of expert information systems**

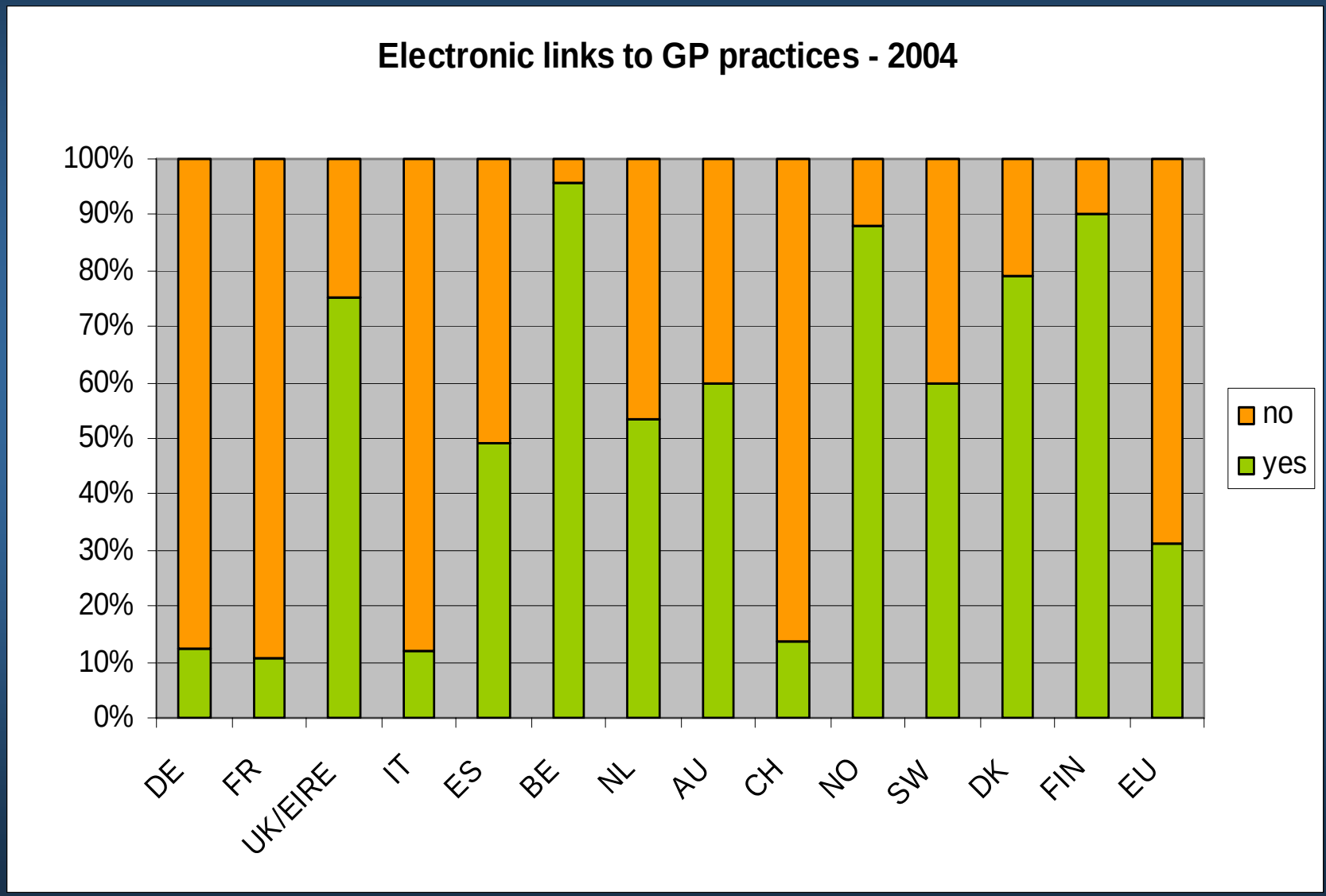
Diraya (Andalucia)



Hospitals 2004: EPR systems



Hospitals 2004: Electronic links



National Priorities: Preliminary Analysis

European eHealth Action Plan Topic	Priority # of Countries	Examples
Electronic Health Records EHR, EPR, Medical Records, Patient Summary, Emergency Data Set	17	DMP - Dossier Médical Personnel (FR) BEHR - Basic Structure for the EHR (DK) NHS Care Records Service / The Spine (UK) Patient summary (SE, FI) SumEHR (BE) eGP file (NL)
Infrastructures & Networks Broadband communication networks and associated technology and basic services	12	MedCom – the Danish Healthcare Data Nework (DK) Sjunet (SE) National Health Network (NO) Connector to national eHealth VPN (DE, AT)
ePrescription	16	Apotheket (SE), eRezept (DE) ePrescription (SI)

National Priorities: Preliminary Analysis

European eHealth Action Plan Topic	Priority in # of Countries	Examples
Information for citizens national portals, regional portals for citizens, pharmacy portals	14	NHS Direct Online (UK) Web Portal (DK) IZIP - web based EHR for doctors and citizens (CZ)
Security & confidentiality	12	eHealth Core – security and identification aspects (LI) Legal aspects of authorisation of patient data (NL)
Continued Professional Education CME, services for professionals, eLearning	7	Hungarian Health Portal - (HU) NHS Direct Online: Information for healthcare professionals (UK)

e-Health action plan: Addressing common challenges

Selected examples of Actions:

- Best practices collection (EC, 2005)
- National/regional roadmaps (MS, 2005)
- Common approaches for patient identifier (EC+MS, 2006)
- Interoperability standards for EHR and messaging (EC+MS,2006)
- Boosting investments in eHealth (MS, 2007)
- Deployment of health information networks (MS, 2004-2008)
  - Including broadband, wireless, grids
- Legal framework, certification of qualifications (EC+MS,2009)

Communication: COM(2004) 356 final 'e-Health – making healthcare better for European citizens: An action plan for a European e-Health Area'

Role of EC :

- Acting as a facilitator, raising awareness of available R&D results and real life solutions that have proven benefit
- Working cooperatively with other relevant EC services (DGs)
- Supporting pilots and other activities to accelerate deployment

Role of Authorities/Politicians:

- Leadership on national/regional scale
- Long term commitments – deployment takes more 4 years!
- Open the strategy and be willing to learn from success and costly lessons of others, P-P partnerships

Role of Industry

- Improve self-regulation for transparent market
- Participate in design of the future EU Health Information Space
- Support openness and interoperability

eHealth Action Plan: Quick summary of progress on some actions

- National/regional roadmaps (MS, 2005)
  - **ERA Health, presentations at eHealth 2006 conference**
- Best practice collection, dissemination (EC 2004-2008)
  - **Health Impact, ERA Health, New Study, eTen 2006**
- Common approaches for patient identifier (EC+MS, 2006)
  - **New Study, eTen 2006**
- Interoperability approaches and guidelines (EC+MS,2006)
  - **TMA Bridge, I2Health, Semantic Health, RIDE, Semantic Mining…**
- Conformity testing and accreditation (MS 2007)
  - **Q-REC**
- Legal framework, certification of qualifications (EC+MS,2009)
  - **New Study**

Main areas of progress – National roadmaps

- **Several MS confirmed roadmaps by end 2005**
  - Replies to questionnaire regarding roadmap situation have come from 15 of 25 Member States, as well as Bulgaria and Turkey
  - 13 of these came from a Ministry of Health (4 from other Ministries)
  - 'Best' (or good) practice examples: 35+ projects/pilots
  - UK: Connecting for Health (the National Programme for IT)
- **Planned/on-going major eHealth applications in a few countries:**
  - Health cards, ePrescription, interoperability specifications/data standards.

Main areas of progress – National roadmaps

Conferences and special events

- eHealth 2005 successfully completed
- eHealth 2006 conference under preparation
- EHFG (Gastein), October 2005
- World Summit on Information Systems – latest info on eHealth in Europe, good practice
- eHealth working group, 2 meetings
- Inter-service group on eHealth, start delayed

eHealth 2006 conference

- For your diary NOW!!
- Prospects and planning for the **eHealth 2006 conference** which will be held in Malaga, Spain on May 10-12 2006.
- Website address: **http://www.ehealth2006conference.org**

Main areas of progress Interoperability

- **Establishment of a "roadmap" regarding interoperability**
  - interoperability working paper (March 2006) based on limited set of scenarios (e.g. emergency, health cards, e-prescription, patient summary) to be produced by Stakeholders' group with the help of the projects
  - Presentations and Interoperability Summit at the eHealth 2006 Conference
  - EC Recommendation on eHealth Interoperability (2007)
  - Commitment of DG ENTR and Standardisation bodies
  - Cooperation with other initiatives (eGov, NESSI)

Why

- Lack of interoperability is detrimental to the patients (lack of information, medical errors, limited mobility), health professionals (difficult access to health records), health managers (lack of economic analysis), researchers (reduced availability of medical data) as well as to industry, in particular to SMEs (reduced market share).
- R&D in eHealth has resulted in proofs of eHealth benefits, including financial.
- Local and regional pilots need to scale to support national and EU wide services.
- The eHealth Action plan calls for joint EU and MS action to find best approaches/guidelines on interoperability of eHealth systems by end of 2006.

WHAT

Specific topics identified as a priority by eHealth WG can be fully explored by the Stakeholders group such as:

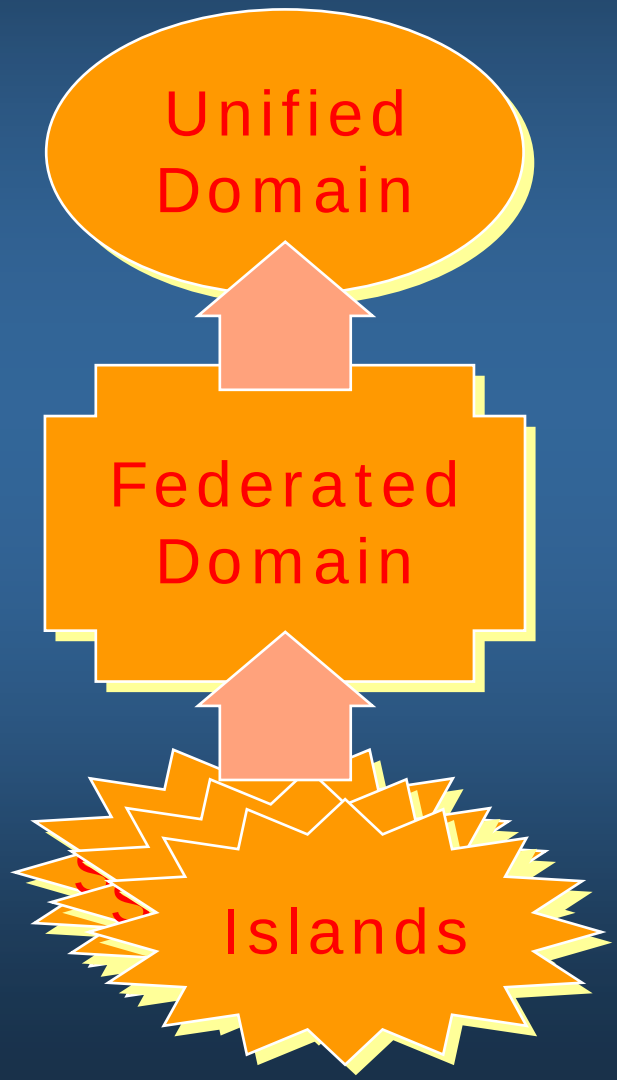
- Patient summary
- Patient/practitioner identifiers
- Emergency data set

including confidentiality and privacy issues as well as demonstration activities and contact with implementation authorities

Different approaches/Levels

Organisational structure in which the parties are governed by one supreme authority

Organisational structure in which the parties negotiate the extent to which they wish to share common resources, and thus surrender their exclusive authority over those resources



Roadmap after 2007?

- Developing further topics (ePrescribing, EHR interoperability including semantic, messaging)
- Harmonise legal framework
- Implementation of certification of applications
- Monitor implementation of Recommendation and the benefits (Impact studies, best practices portal)
- Support implementation (structural funds, CIP)

Structure of the Recommendation

- **Political /social aspects** –patient safety, mobility; incentives, political support, collaboration aspects, funding requirements
- **Technical aspects** – architecture proposed, possible technical solutions Semantic – terminology, language etc.
- **Legal and organisational aspects** – data protection, confidentiality (±certification schemas)
- **International aspects** – collaboration with US, Canada, Australia… ISO, WHO, ITU, ESA…

- Technical annex on existing **standards**
- Annex on **legal requirements**
- Annex on **certification criteria**

In two words:
AIM of the Action Plan

- The goal is to enable access to the basic data of patient's electronic health record from any place in Europe by authorised professionals and under the consent of the patient

- The ultimate goal is to have accessible, secure and comprehensive electronic health records that supports patient care

Google for Health

To find more on ICT for Health / eHealth?

- Policy site:
  http://europa.eu.int/information_society/activities/health/index_en.htm
- eHealth R&D Newsletter (monthly issues):
  http://europa.eu.int/information_society/activities/health/research/newsletter/index_en.htm
- Research site:
  http://www.cordis.lu/ist/directorate_c/ehealth/index.html

Thank you

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Thank you for your attention