



# **EHR IMPACT**

## **Socio-economic impact of interoperable electronic health record and ePrescription systems in Europe**

# **STUDY RESULTS**

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# Overview

- 1. The EHR IMPACT (EHRI) case studies**
- 2. Summary results from EHRI**
- 3. Analysis and conclusions**
- 4. Relevance to i2010 objectives**

# EHRI cases (I)

## 1. Emergency Care Summary Scotland, UK

- medication and allergies record for the whole population

## 2. University Hospitals of Geneva, Switzerland

- EPR-based information system, including full CPOE within the hospitals

## 3. National Heart Hospital Sofia, Bulgaria

- EPR-based information system

## 4. Kolin-Caslav health data & exchange network, Czech Republic

- regional network of hospitals and GPs/specialists

## 5. Diraya, Andalusia, Spain

- regional EHR system with focus on primary care

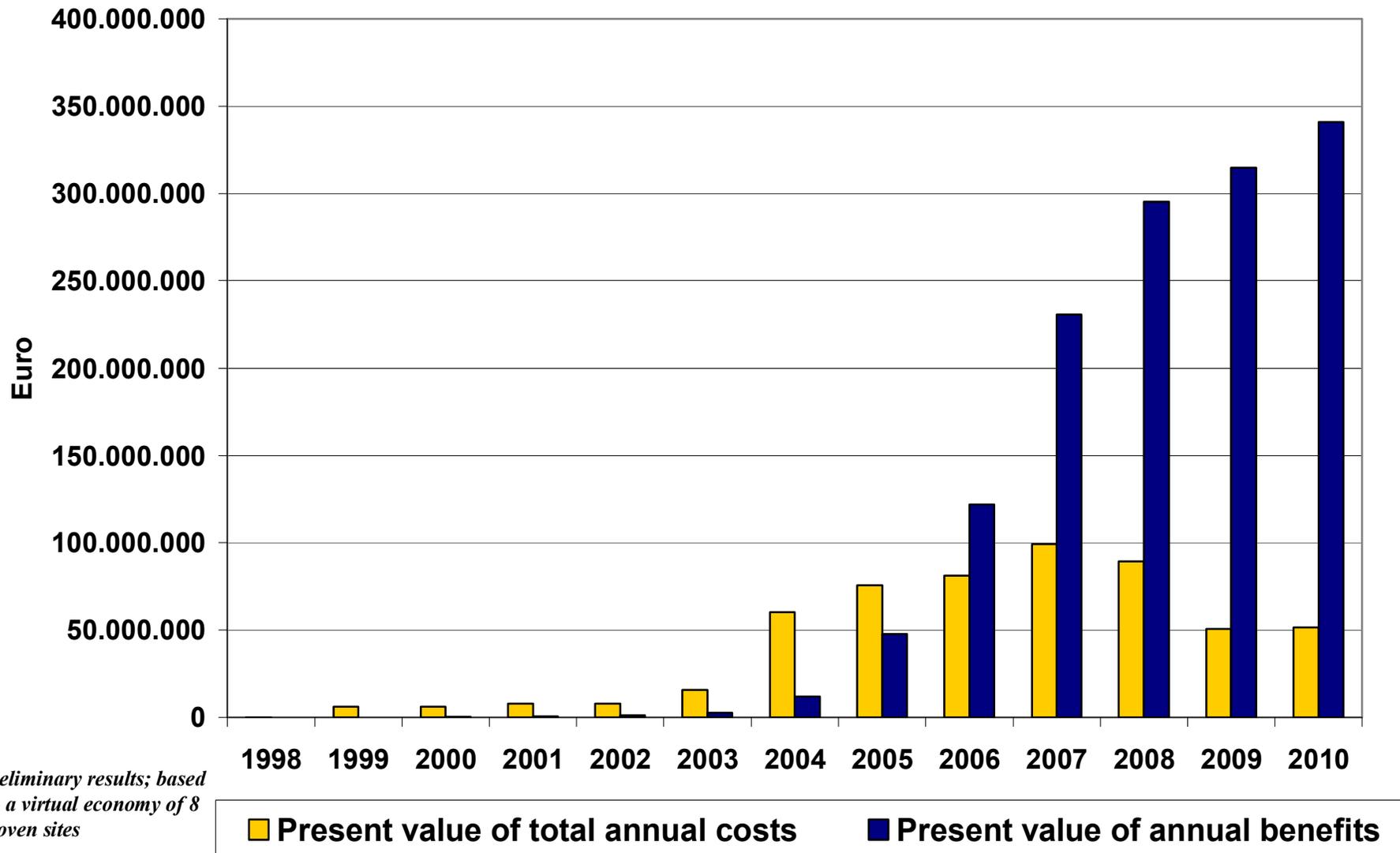
## 6. Receta XXI - ePrescribing in Andalusia

- in connection with Diraya

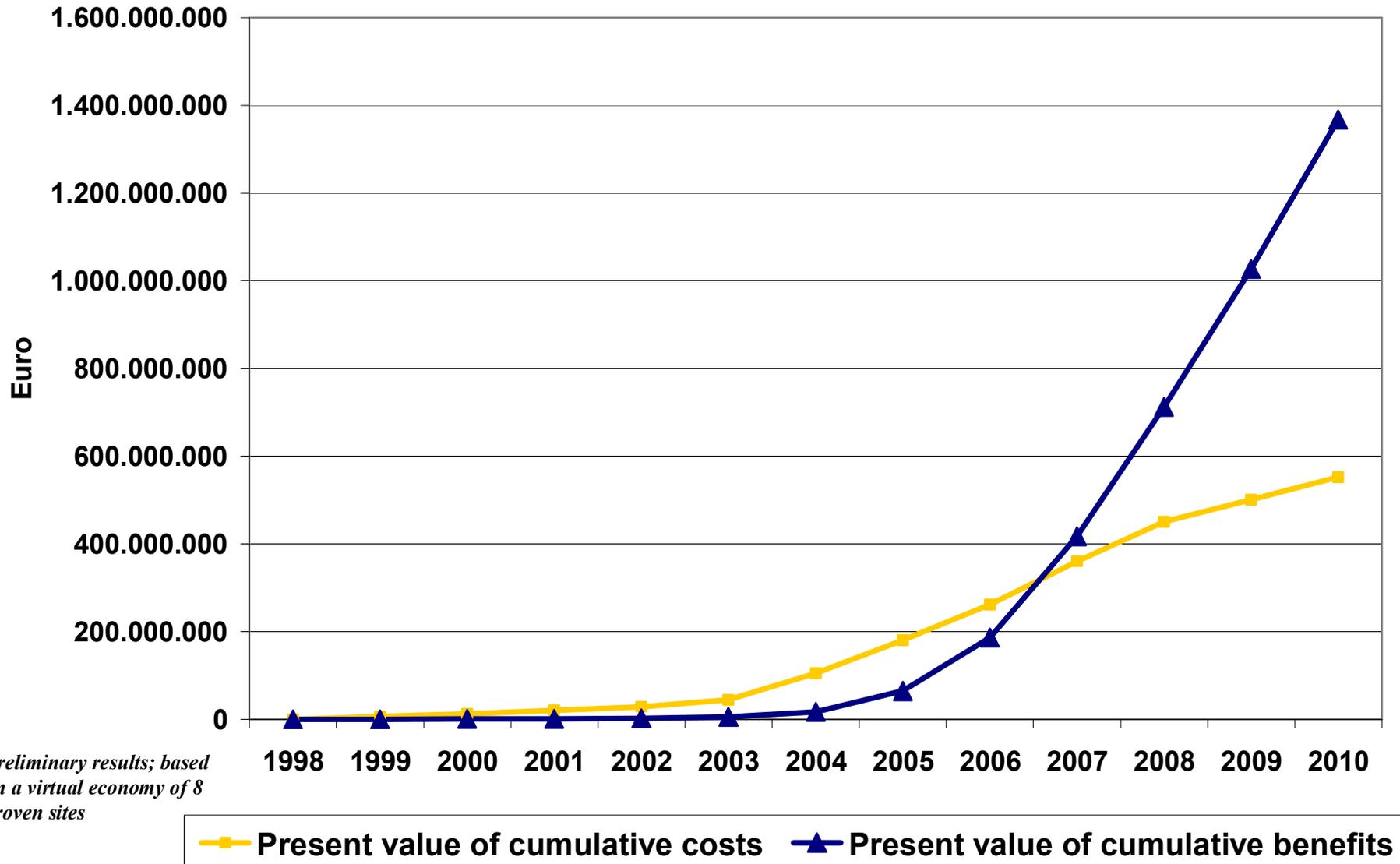
## **EHRI cases (II)**

- 7. Shared and Distributed Patient Record platform in the Rhône-Alpes Region, France**
  - covering 30 hospitals and 200,000 patients; 2 m medical documents
  
- 8. Regional integrated EHR and ePrescribing across the Kronoberg County, Sweden**
  - spanning the entire health service system
  
- 9. ePrescribing and EHR network in Lombardy, Italy**
  - covering the whole population, primary & secondary care, pharmacies
  
- 10. Nation-wide health information network, Israel (qual. report)**
  - based on local EPRs, incl. primary and secondary care
  
- 11. Evanston Hospital, Northwestern Healthcare, USA (qual. report)**
  - comprehensive EPR-based information system, including secondary use data warehouse

# Economic value of impact to society

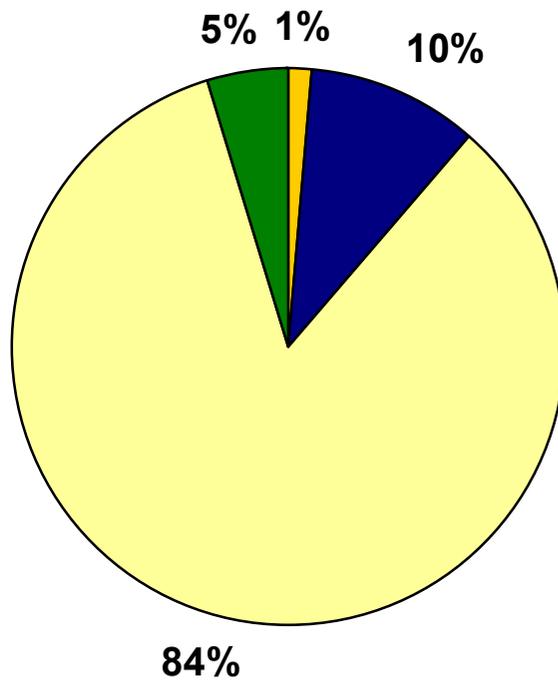


# Value of socio-economic impact

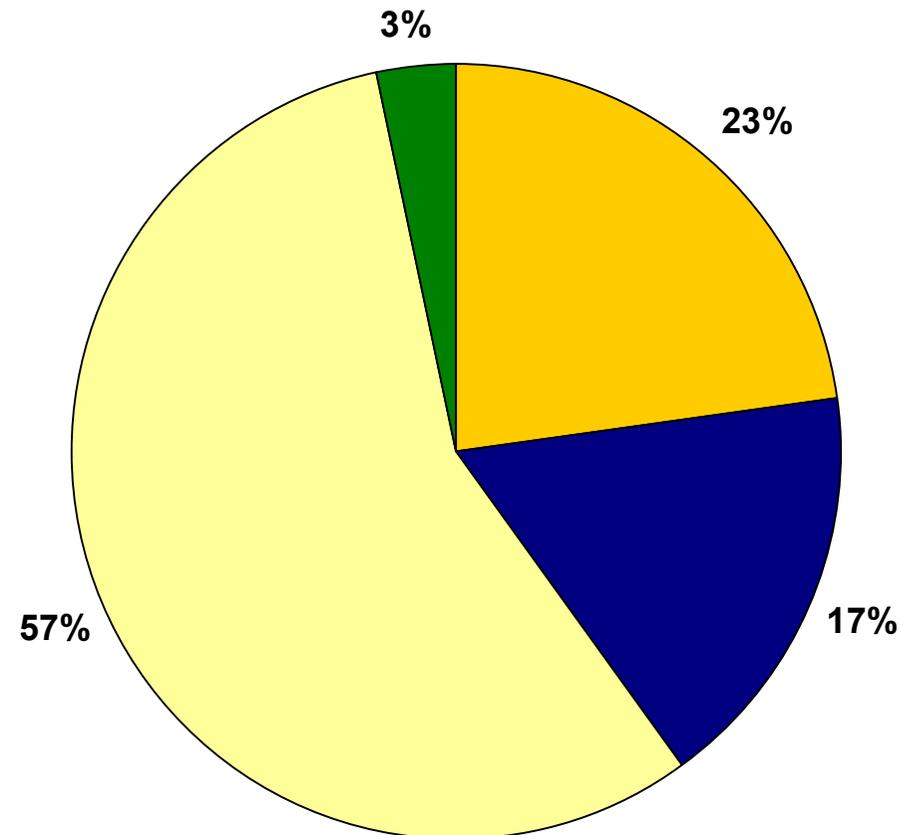


# Distribution according to stakeholder groups

## Costs



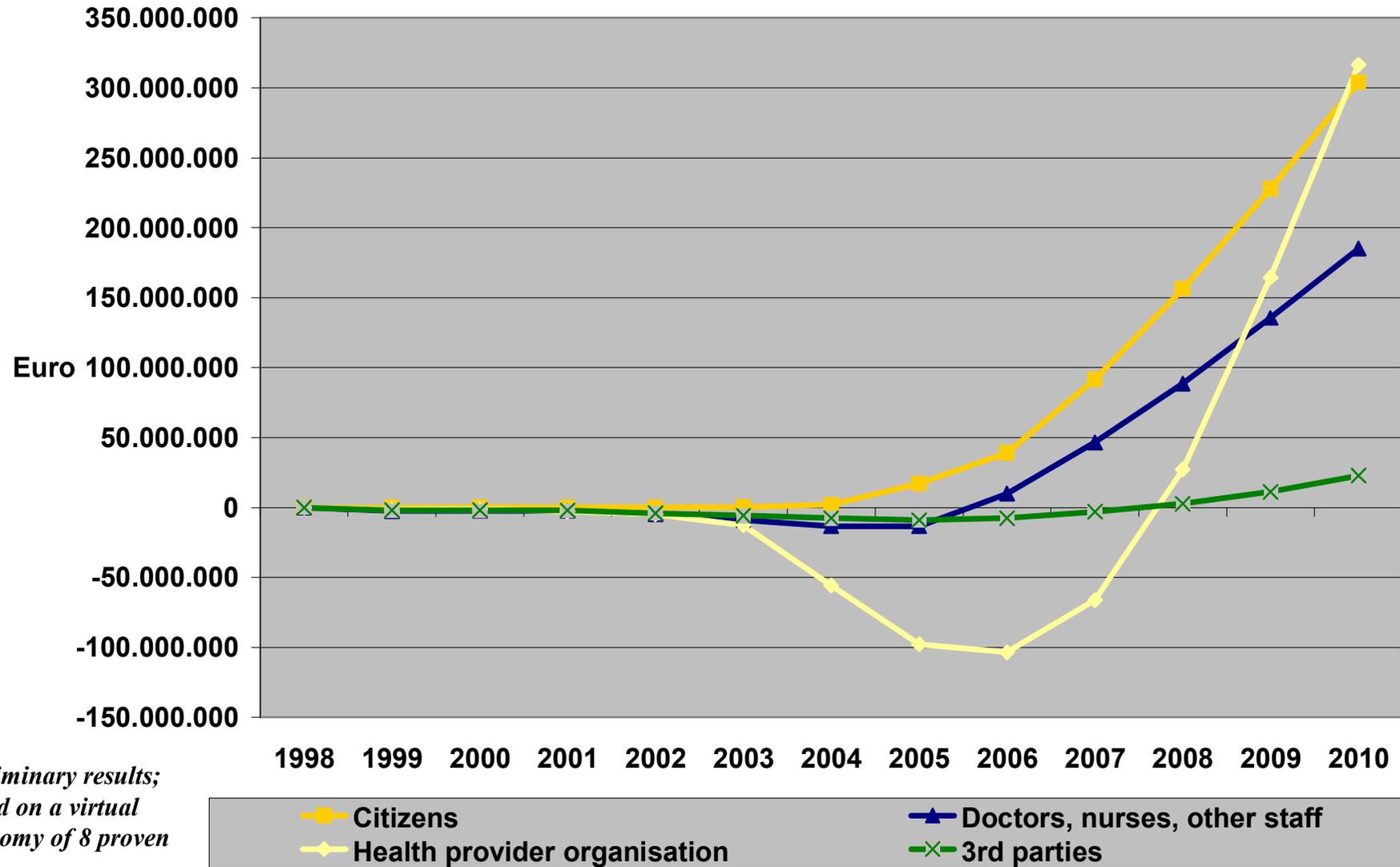
## Benefits



*Preliminary results; based on a virtual economy of 8 proven sites*

■ Citizens   ■ Doctors, nurses, other staff   ■ Health provider organisation   ■ Third parties

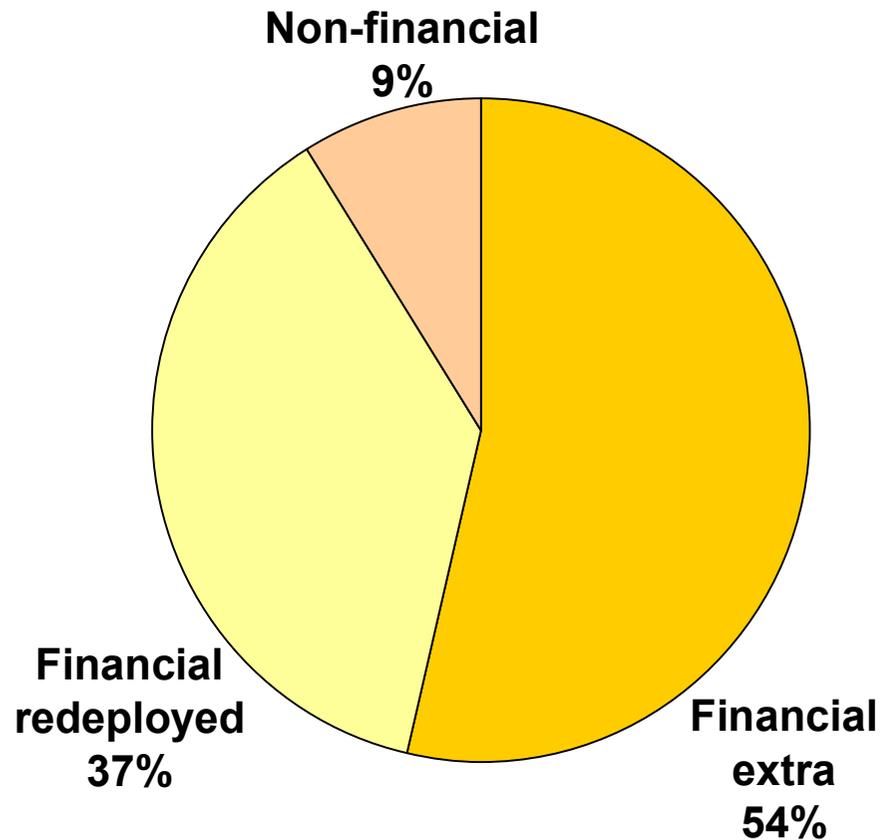
# Value of cumulative net benefits



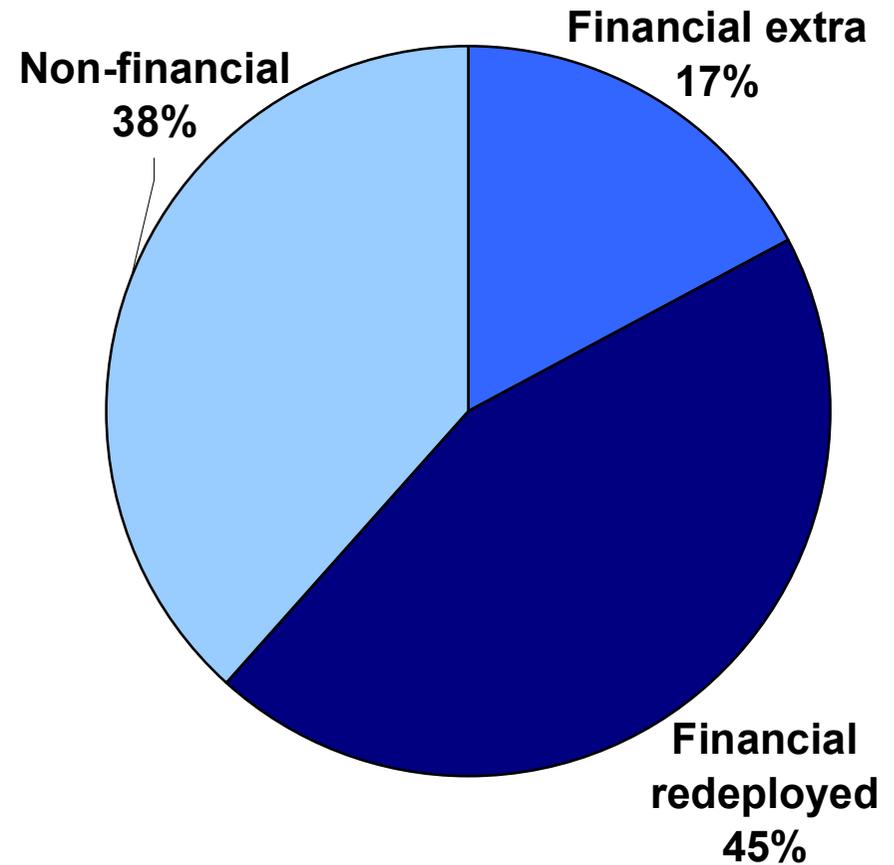
*Preliminary results;  
based on a virtual  
economy of 8 proven  
sites*

# Types of costs and benefits

## Costs

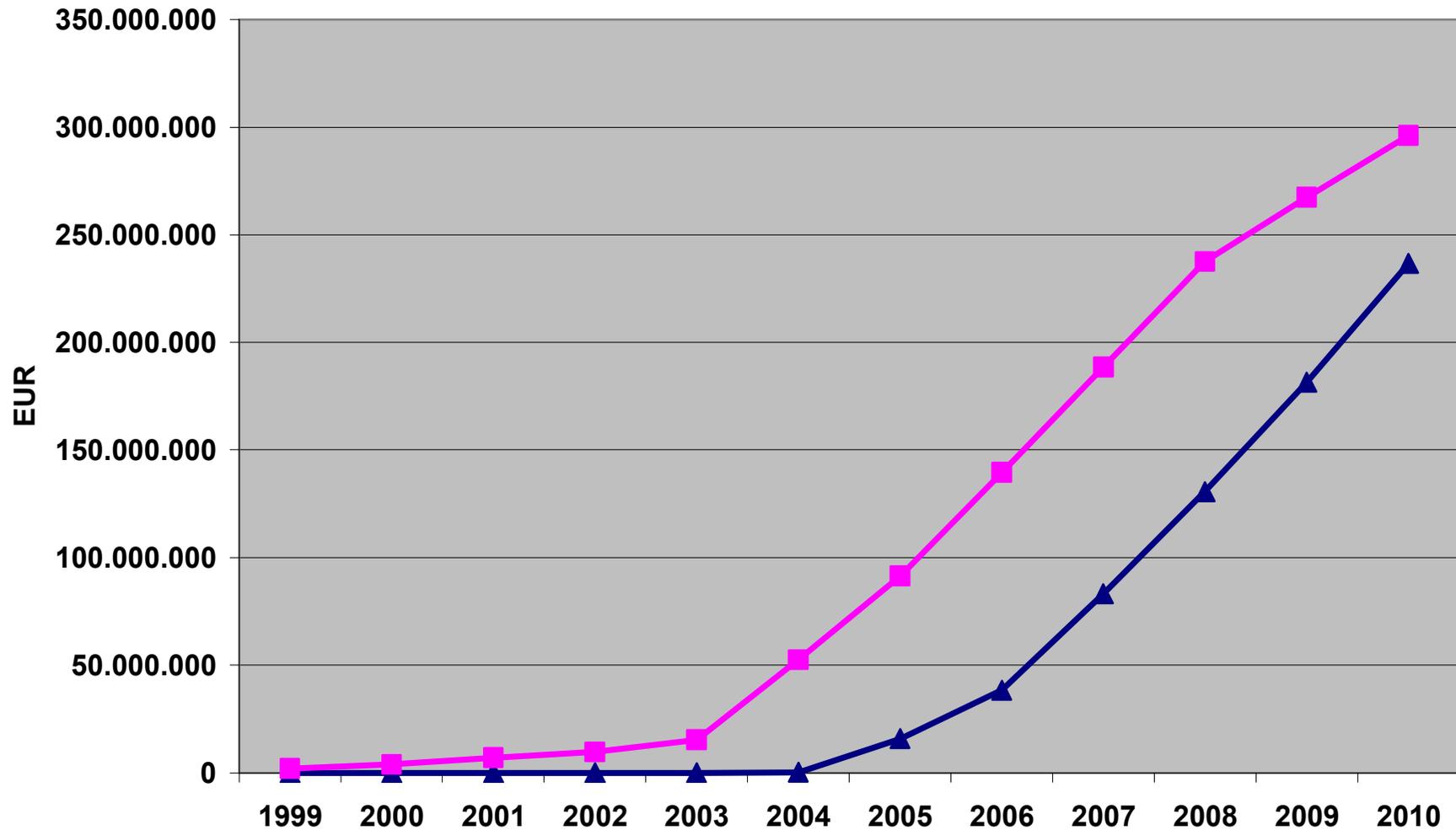


## Benefits



*Preliminary results; based on a virtual economy of 8 proven sites*

# Estimated financial impact



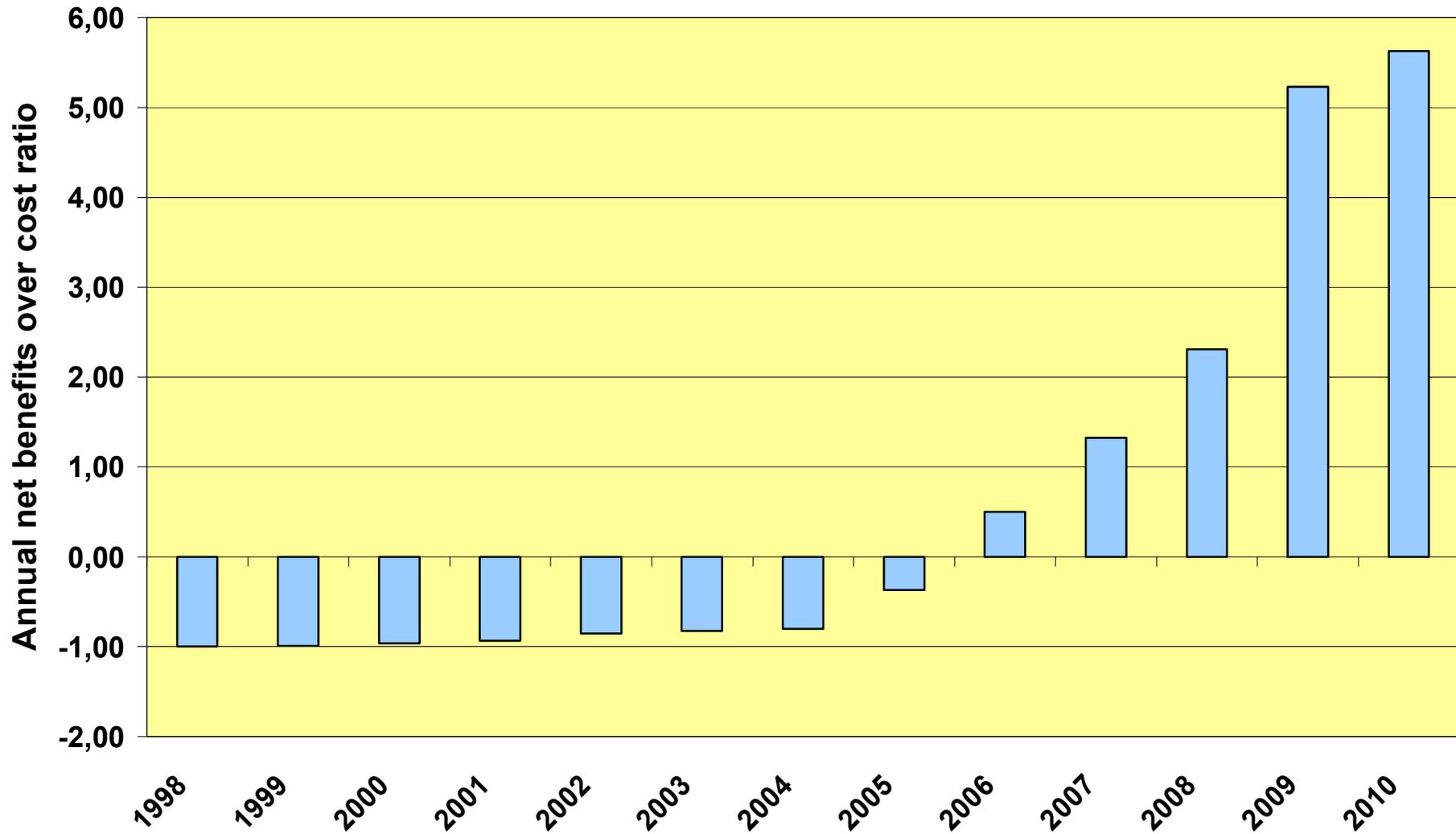
*Preliminary results; based on a virtual economy of 8 proven sites*

—▲ Cumulative financial benefits —■ Cumulative financial costs

# Different returns

- **Value of socio-economic return: 148%**
- **Financial return: -20%**

# Value of socio-economic return



*Preliminary results; based on a virtual economy of 8 proven sites*

## Insights from the statistics

- Usability and utilisation are key
  - Average correlation of utilisation to benefit: 0.98
  - Average correlation of utilisation to net benefit: 0.91
- Most of the investment is not the IT
  - ICT cost as share of total: 38%
  - ICT costs as share of health service provider organisation costs: 45%
- Most initiatives will remain financial investments in non-financial returns

# Observations on impacts

- Types of benefits
  - At the point of care: **mainly quality and efficiency** from better informed decisions
  - Cash gains may be realised when leapfrogging from paper-based admin processes
- EHRs facilitate meeting information-intensive goals
  - **Continuity of care** (Rhône-Alpes, Lombardy, Kronoberg, Israel, Andalusia)
  - Epidemiology & other public health statistics (Andalusia, Sofia, Geneva, Israel)
  - Waiting time management (Andalusia, Scotland, Sofia, Kolin)
  - Out of hours and A&E healthcare provision (Scotland, Kronoberg, Andalusia)

# Timescales

- Complex systems need patience
  - Average time to annual net benefit: 7 years (4 to 9)
  - Average time to cumulative net benefit: 9 years (6 to 11)
- The EHRI timescale is artificially cut at 2010
  - Some impacts will continue to grow (esp. Scotland, Rhône-Alpes, Lombardy, Kronoberg)
- Common time horizons of strategies are too short
  - Include mainly the costs, but do not reach out long enough to include the realisation of benefits
- The risk paradox
  - Longer timescale as a risk mitigation tool

# Architectural set-up and meaning of EHR

- Interoperability: key, but addressed in different ways
  - One system: Kronoberg, Andalusia
  - Network of systems & integration platforms: Scotland, Rhône Alpes, Lombardy, Kolin, Geneva, Israel, Sofia
- A trend towards virtual EHRs
  - Not a stand alone record, but a health information system that can present a personal profile for a specific patient
  - ePrescribing forms an essential part of successful examples

## Insights on success

- **Organisational issues need to be sorted out first**
  - The IT follows, and can create new opportunities
- **Engagement, consultation, and implementation management**
  - Early engagement ensures usefulness
  - Consultation is insufficient
  - Users need to adapt at their own pace, with the IT following suit

# The EHR IMPACT conclusion

## *There is no silver bullet*

- Transferability of the ERHI sites is limited by the **political, structural, and health system environment**
- The need for **interoperability also limits transferability** between sites
- No right or wrong approach, just **a good way to do it:**
  - Clear objectives derived from needs of health service delivery
  - Fitting the political environment – opportunities and threats
  - Fitting cultural specificities, especially when planning implementation

# EHR IMPACT: Relevance to i2010 objectives

- EHRI findings consistent with most i2010 goals
  - Access, inclusion, quality, effectiveness, efficiency
- It is not consistent with goals for economies of scale because:
  - Costs, benefits and utilisation are broadly correlated
  - Investment is step by step
  - EHRI found only cases with < 10 million population



# Thank you!

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