



EHR IMPACT

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

STUDY RESULTS

Alexander Dobrev, empirica
Tom Jones, TanJent
Yvonne Vatter, empirica
Kai Peng, empirica
Karl & Veli Stroetmann, empirica

i2010 Sub Group on eHealth
Brussels, 09 July 2009

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

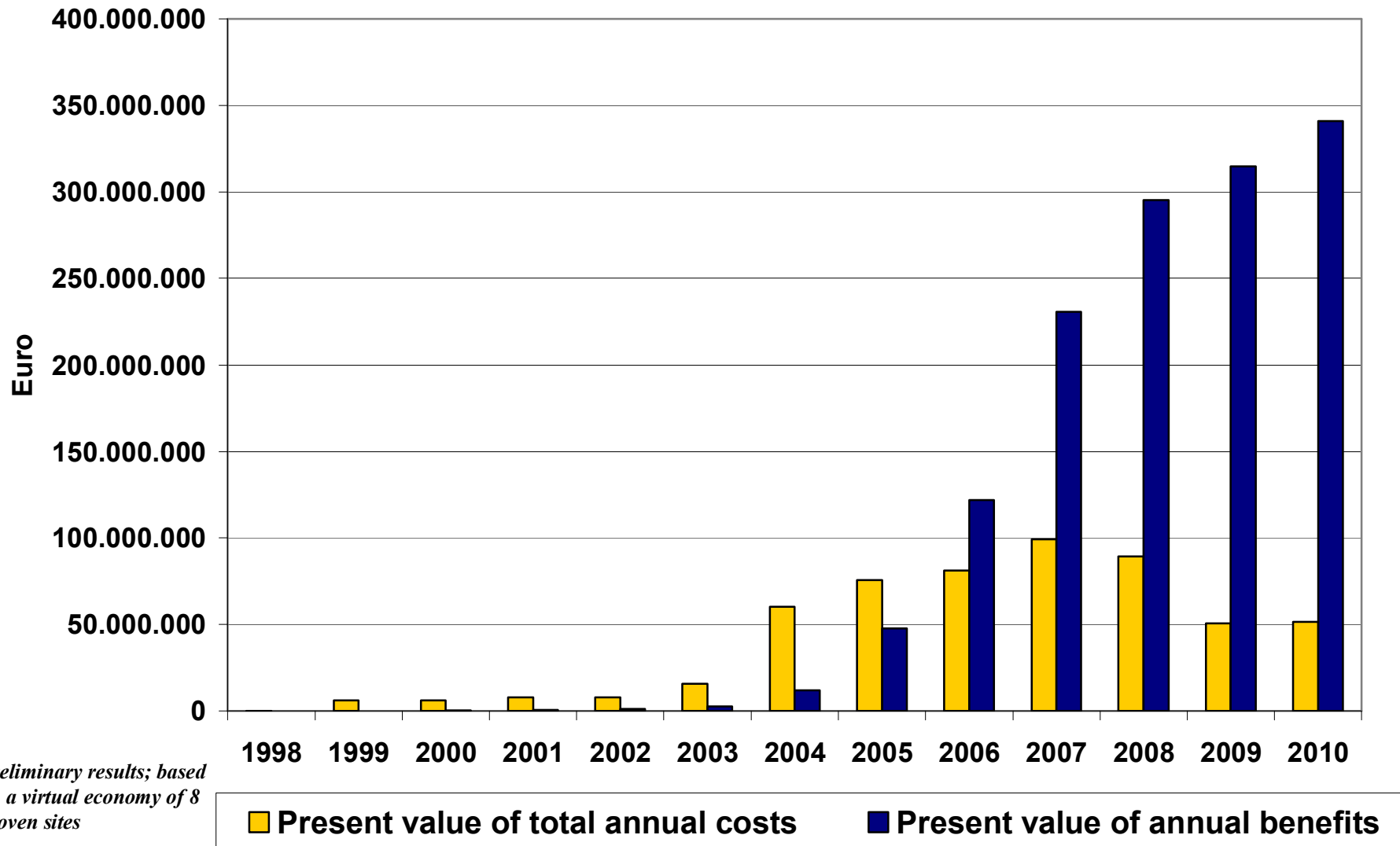
- 8. Regional integrated EHR and ePrescribing across the Kronoberg County, Sweden**
 - spanning the entire health service system

- 9. ePrescribing and EHR network in Lombardy, Italy**
 - covering the whole population, primary & secondary care, pharmacies

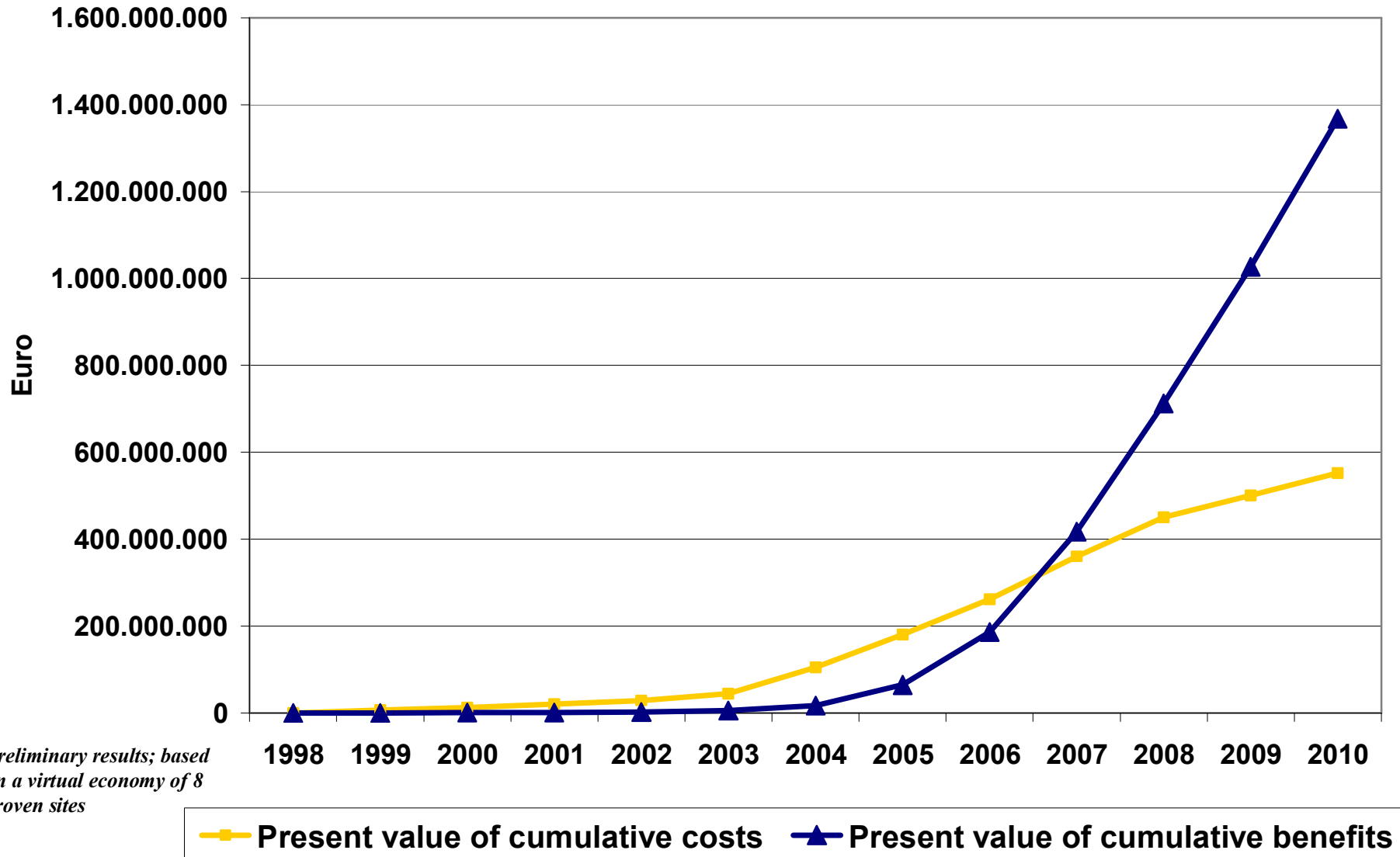
- 10. Nation-wide health information network, Israel (qual. report)**
 - based on local EPRs, incl. primary and secondary care

- 11. Evanston Hospital, Northwestern Healthcare, USA (qual. report)**
 - comprehensive EPR-based information system, including secondary use data warehouse

Economic value of impact to society

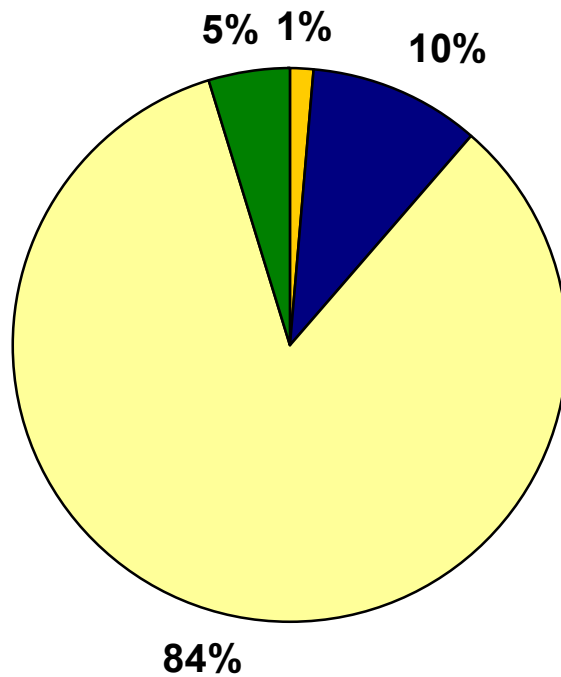


Value of socio-economic impact

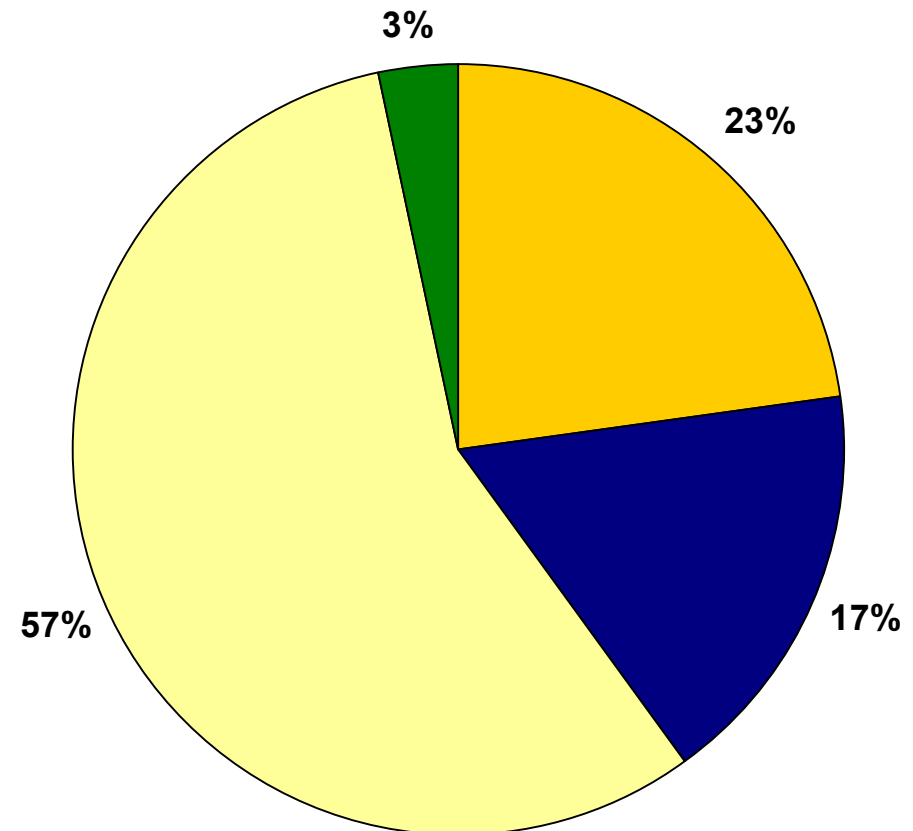


Distribution according to stakeholder groups

Costs



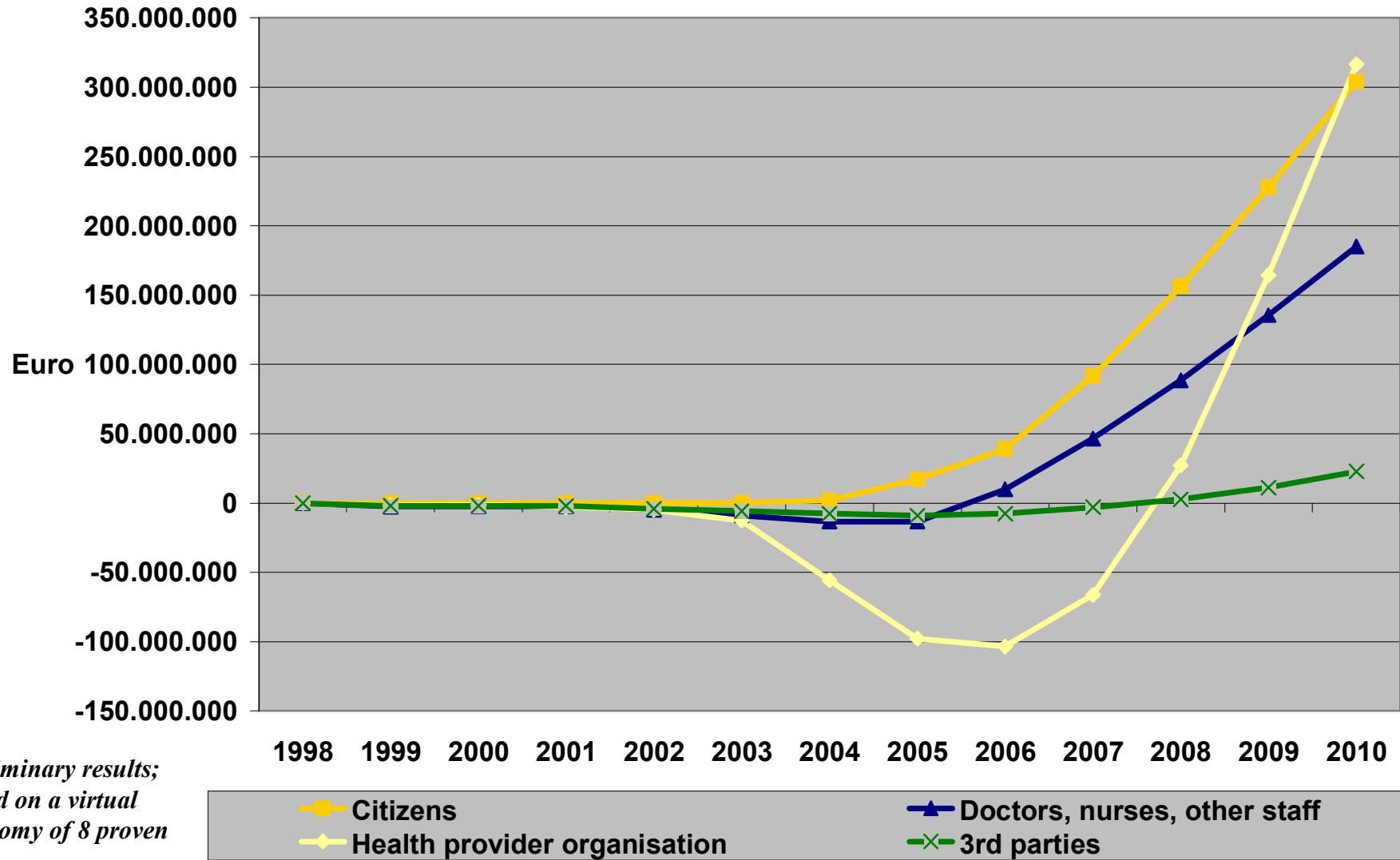
Benefits



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

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

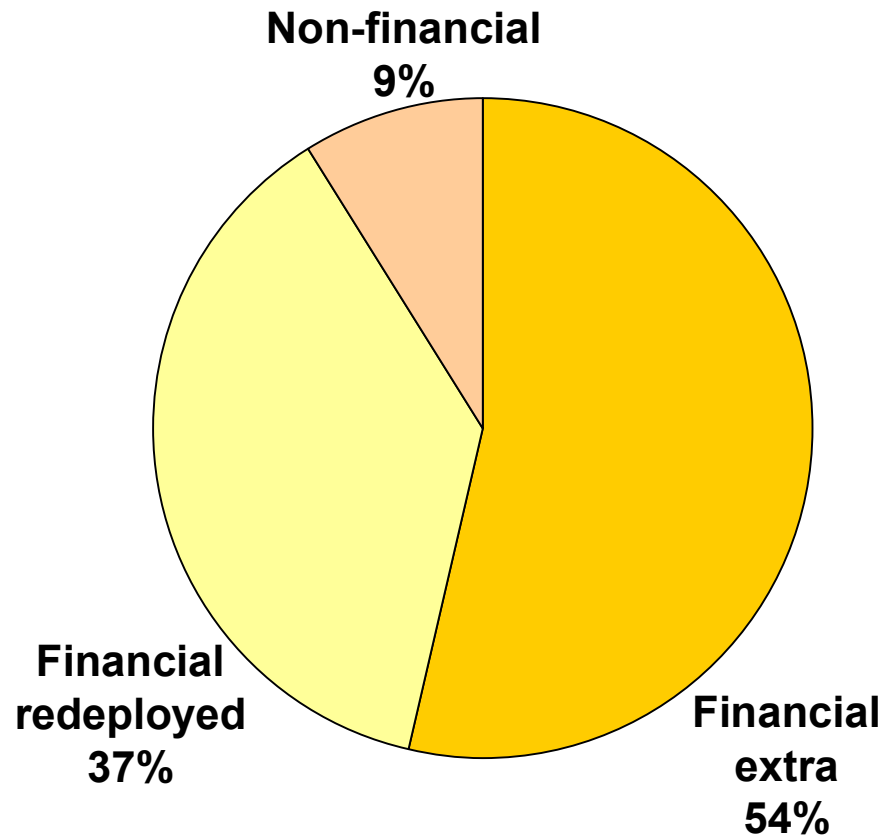
Value of cumulative net benefits



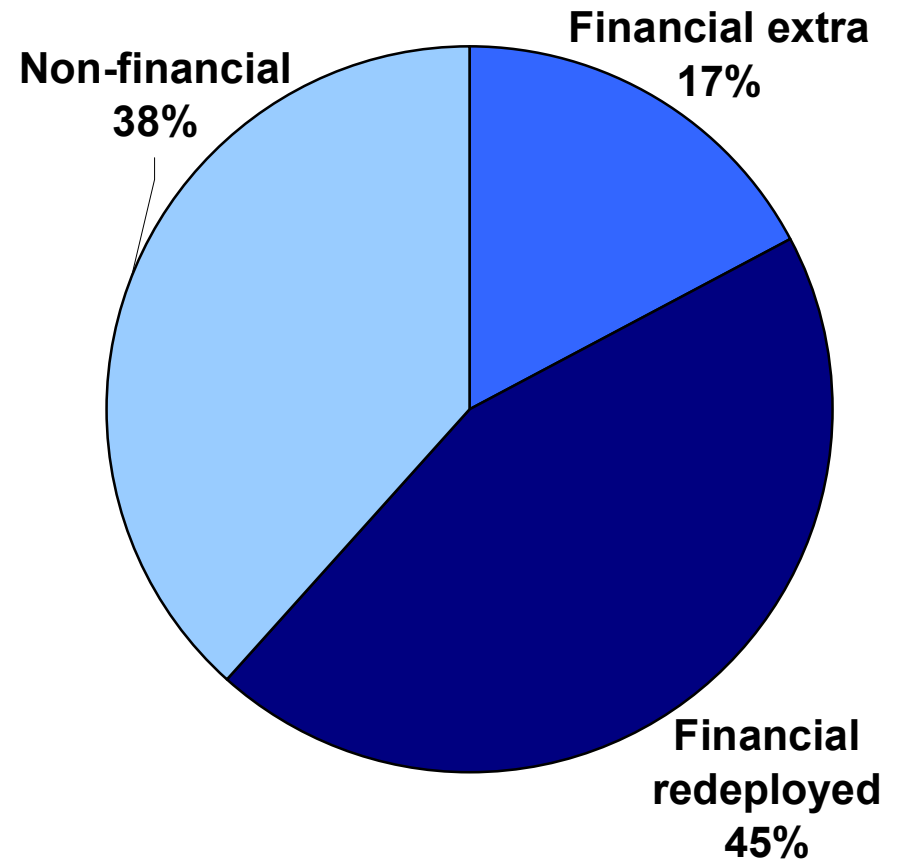
*Preliminary results;
based on a virtual
economy of 8 proven
sites*

Types of costs and benefits

Costs

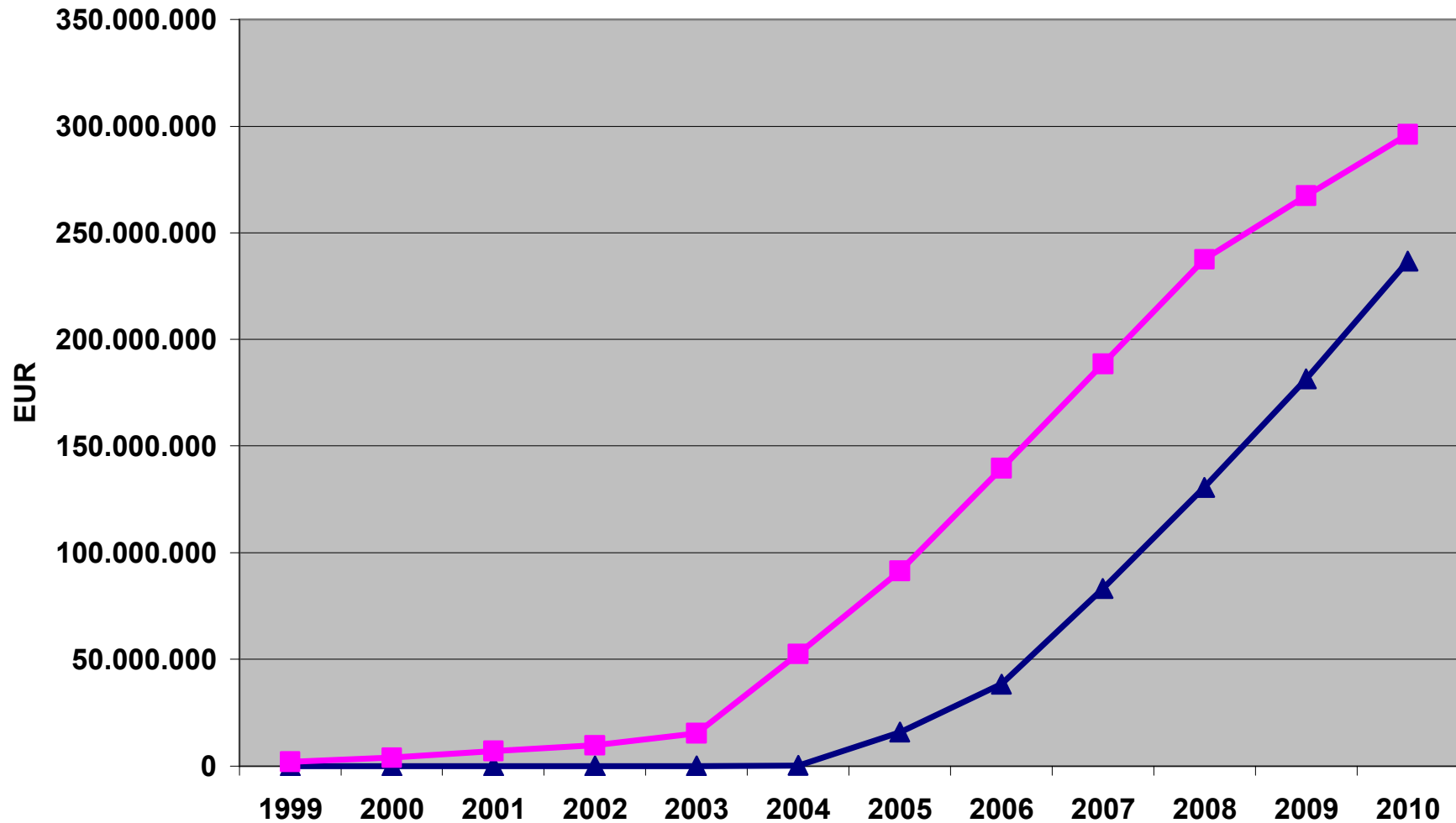


Benefits



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

Estimated financial impact



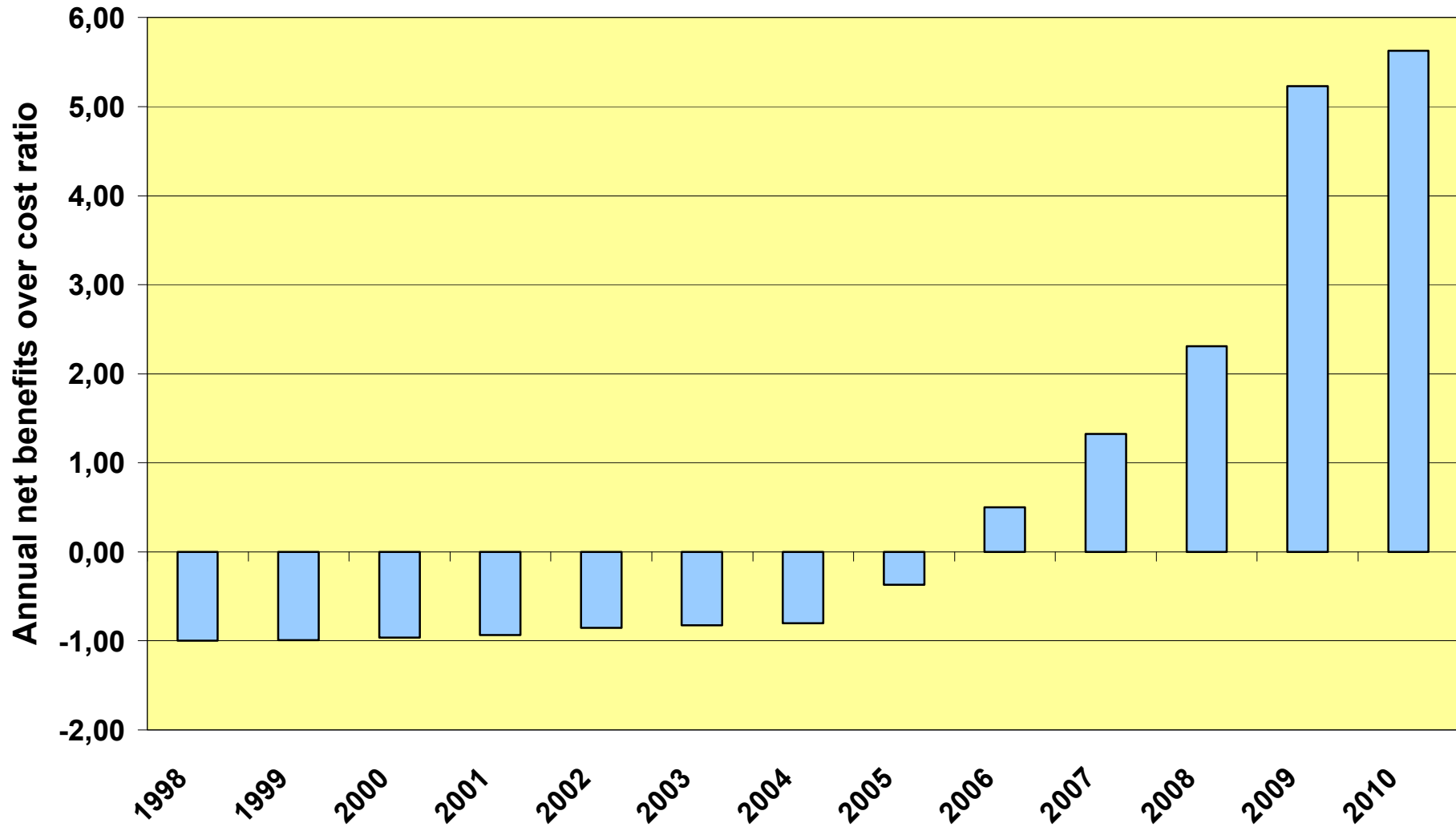
Preliminary results; based on a virtual economy of 8 proven sites

—▲ 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!

Alexander Dobrev

empirica Communications & Technology Research

Oxfordstr. 2

53111 Bonn, Germany

Tel: +49 (0)2 28 - 98 530 -0

Fax: +49 (0)2 28 - 9 85 30 -12

www.empirica.com

www.ehr-impact.eu

Tom Jones

**TanJent
Consultancy**

United Kingdom

+44 7802 336 229

www.tanjent.co.uk

*This presentation is part of a Study on the socio-economic impact of interoperable electronic health record and ePrescribing systems (www.ehr-impact.eu) commissioned by the European Commission, Directorate General Information Society and Media, Brussels. **This presentation reflects solely the views of its authors.** The European Community is not liable for any use that may be made of the information contained therein.*