Software reuse in the Belgian social security and health care
The eHealth case

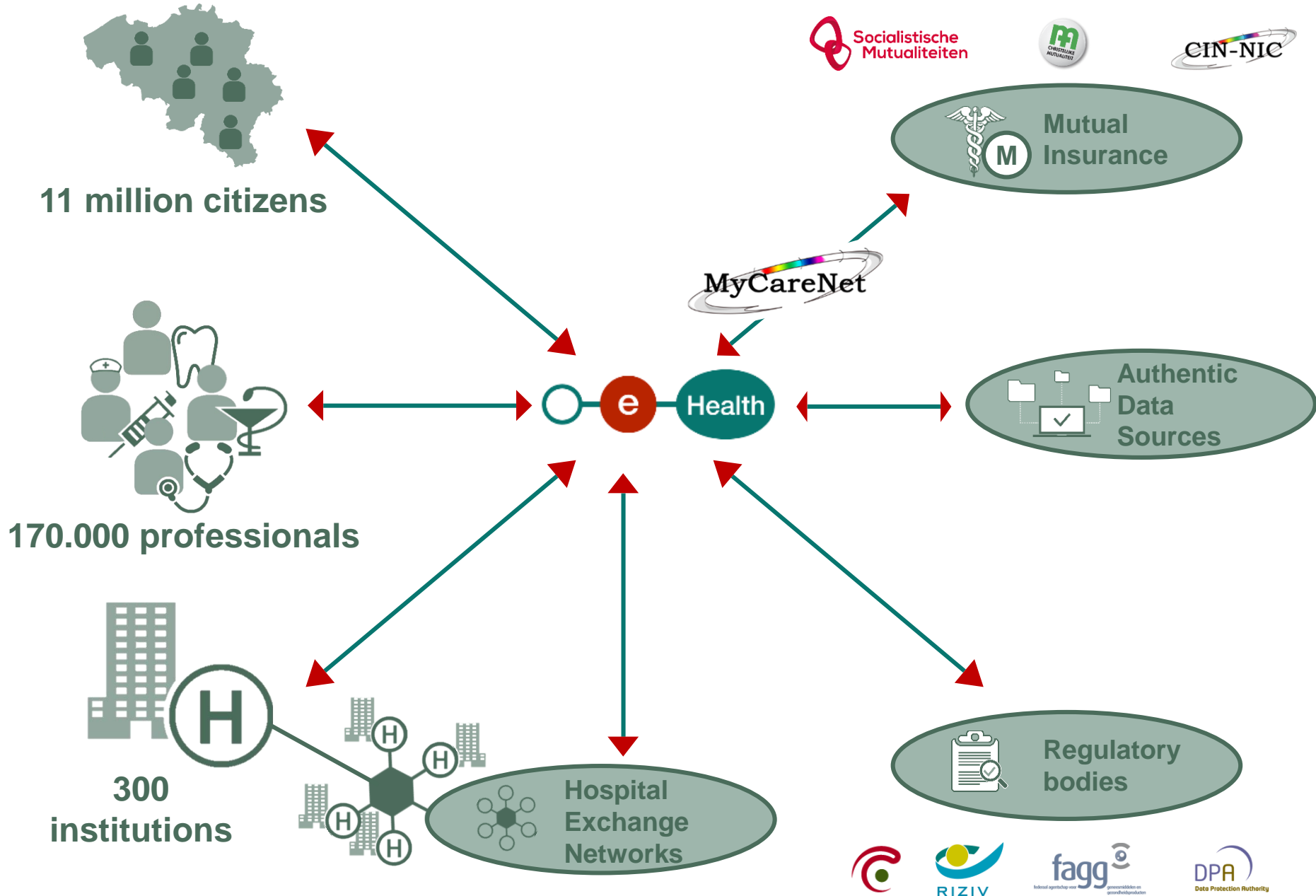# Information saves lives

Context and state of play

- Belgian health care is a complex domain with many stakeholders
    - > 11 million citizens
    - 170.000 professionals (medical practitioners, dentists, clinical laboratories, pharmacists, physiotherapists, home care nursing…)
    - 300 institutions (hospitals, residential care homes…)
    - health insurance funds
    - government & regulatory institutions

Context and state of play

- Belgian eHealth-platform
  - federal public institution, created by law on 21/8/2008
  - charged with promoting and developing electronic services and digital information exchange for / by / between all involved stakeholders
  - organizing information security, guaranteeing the privacy of patients and practitioners, and respecting the medical secret
  - working towards better quality and continuity of medical care, protection of patient safety, and simplification of administrative procedures for all parties concerned
  - supporting political decision making on health care topics, through data driven decision making

Belgian health care - actors

11 million citizens

170.000 professionals

300 institutions

Socialistische Mutualiteiten

CHRISTELIJKE MUTUALITEIT

CIN-NIC

MyCareNet

eHealth

Mutual Insurance

Authentic Data Sources

Hospital Exchange Networks

Regulatory bodies

RIZIV

fagg

DPA Data Protection Authority

Solution design

- eHealth-platform sets functional and technical standards, specifications and basic architecture guidelines
  - decentralization
  - standardization
  - API's
  - reuse
  - integration
  - security
- the portfolio consists of
  - basic services (identification, certificates, access control, secure messaging, timestamping...), offered free of charge
  - value added services, that can be developed by any (private) actor, reusing the existing (basic) services

Governance

- oversight committees govern the roadmap and the interaction with stakeholder groups
- reusable components used by public institutions
  - streamline B2B communications between the government and private stakeholders (ex. medical practitioners, hospitals → mutual insurance companies)
  - facilitate B2B communications within the medical sector (ex. medical practitioners → hospitals)
- maintenance of the services and components is governed by
  - the team doing the initial development
  - or the team managing transversal development
- the eHealth-platform has joined public social security institutions and their shared services organization Smals in their effort to make reusable services, systems and components available
- reusable components are provided free of charge and maintained following the roadmap of each institution donating the service, system or component
- Smals also offers additional expertise and support against reimbursement of the actual cost
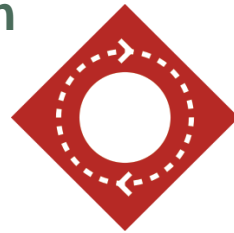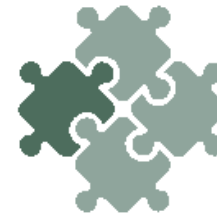
Technical choices
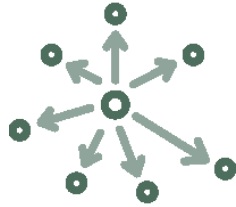
Decentralization
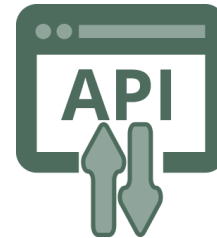
Standardization

ReUse

API

Integration

Security

BASIC COMPONENTS

Coordination of digital subprocesses	**Portal**	**Integrated user and access management**
End-to-end encryption	**eHealthBox**	**Timestamping**
Consultation of Registers	**Reference directory (metahub)**	
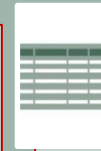
Management of logs
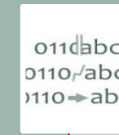
Encryption and anonymization

Impact on businesses and citizens

- the eHealth-platform makes high-quality medical information available for medical practitioners, resulting in many benefits
  - faster, better diagnostics
  - avoidance of life-threatening situations (ex. pre-existing conditions, patients' known allergies to medicine/substance…)
  - less administration, faster reimbursements
  - avoidance of redundant treatments / examinations
  - fact-based medicine & policy development
  - cost reduction
  - easy third-party payments
  - transparency for patients: online access to your own medical data / history – www.masanté.be

Impact and results

- broader picture – the Reuse initiative

- Belgian public social security institutions, eHealth and Smals join forces and obtained a 13% cost reduction thanks to reusable services, systems and components

- the cost reduction benefits are an average based on benchmarking of dozens of projects

- the cost reduction is likely to grow when more institutions will contribute more services, systems and components

Results & benefits

>75%
**Belgian citizens'
Informed Consent**

+62%
went digital

84 million
**Messages / year
via secure eHealthBox**

2018

13.300.000.000
Digital transactions annually

Electronic Prescriptions

5 million / month

14.000   **4.800**

3,4 million
**Belgian patients with
Summary Electronic Health Records**

Sustainability of the solution

- The eHealth-platform is offering basic ICT services free of charge to all health care stakeholders in Belgium. A de facto monopoly on these services (user & access management, end-to-end-encryption, timestamping, secure messaging...) is based on the institution's mission, as defined by law. The legal mission of the eHealth-platform is also the basis for permanent financing by the Belgian government (annual budget of approximately 15 million EUR)

- The business owners are mandated by law to offer these eHealth basic services. Third party stakeholders wishing to exchange medical information and/or to retrieve information from eHealth-applications or authentic data sources from Belgian public social security institutions, are required to do so using the eHealth basic services.-

- All stakeholders are represented in advisory boards, overseeing the governance of the eHealth-platform and the evolution if its services (release planning, several releases per year)

- Belgian public social security institutions have integrated software reuse as a strategic axis of development and convergence in their triannual management agreements (2019-2021) with the Belgian state. The Reuse initiative is based on voluntary contribution of the existing software, systems and services. There is no direct cost involved in the initial contribution, unless the incremental effort to make technical functionality sufficiently generic, and to write broadly usable documentation. There is a consensus, proven by benchmarking, that future technical evolutions and maintenance will cost less, per stakeholder, if a service, system or component is shared among several institutions

- Smals, as a common shared ICT services organization, offers the legal framework for cost accounting and cost sharing. Ever since 1939 the non-profit organization, governed by its member institutions, has been offering expertise and creating economies of scale for the Belgian public social security organizations. Smals has over 1800 employees and an annual turnover of 321 million EUR (2018). Even if the services volume offered by Smals has been growing year after year, it has no growth targets or any other for-profit mission. It aims to offer solid expertise and innovative ICT services, in a sustainable way, against reimbursement of the actual service cost
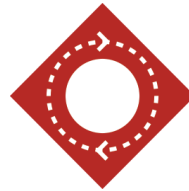
Vision & next steps

- the Belgian public social security institutions aim at creating and nurturing a culture of collaboration and reuse. All institutions are asked to think 'out of the box' and stop rewriting the same components over and over. A 'reuse competence center' has been created within the shared services ICT organization Smals, putting the common strategy into practice

- several networks of high level executives and IT-professionals are put in place in order to facilitate and promote reuse within the Belgian federal government. Starting at the top, a group of chairmen of federal agencies discuss cross-institutional issues and services at a regular basis. Their respective CIO's meet up monthly to align IT-initiatives, launch collaborative efforts for new projects and exchange best practices. Recently heads of development of several federal agencies also joined forces in order to realize cross-institutional knowledge exchange and detect common projects and components. These bodies will provide a catalyst for reuse within the Belgian federal government.

- efforts are ongoing to allow and encourage institutions to contribute software development by private sector suppliers to the Reuse initiative, and create awareness among private sector suppliers to also create reusable components (generic functionality, guidelines, documentation...), for example as an additional requirement in public tender procedures.

ReUse in Social Security

Government wide initiative

SOFTWARE REUSE CATALOGUE

Framework   Library   Product   Service   System

71 Reusable components
and counting…

THANK YOU!