



A crowdsourced
ecosystem
to fight
childhood cancer



EU4CHILD receives funding from the European Union's Call for Pilot Projects and Preparatory Actions (PPPA) under Grant Agreement No. 101018783

Shining a light on

Childhood Cancer

In 2020, over **15,500 children** and **adolescents** were diagnosed with cancer in Europe and over **2,000** lost their lives to it. Pediatric cancer represents the **leading cause of death from disease** in children beyond the age of one: **Leukemia**, accounting for 33% of all cancers, followed by brain tumours like **Neuroblastoma**, **Nephroblastoma** and **sarcomas**, are the most common types.

There is a strong need for standards and indicators of the **quality of life** of young cancer patients and **Artificial Intelligence (AI)** can contribute to both their definition and assessment.

The availability of easy to use, **eXplainable AI tools** for precise **diagnosis**, **personalised treatment** selection and **outcome prediction** in children with cancer is key.



A multidisciplinary roadmap to fight Childhood Cancer

A multi-perspective (ethical, privacy, governance, medical-based, AI specialists, IT, infrastructure and industry) State-of-the-Art, complemented by a **roadmap** and **guidelines** on the **mechanisms and tools** to implement the ecosystem.

To do this, we will collect and assess the **challenges**, **needs** and **open issues** arising from patients, health professionals, healthcare institutions, national health systems and AI specialists.

An interactive
State-of-the-Art



A solid *Knowledge Base*

A single access point to boost knowledge exchange and collaboration opportunities

EU4CHILD will build a **one-stop portal** to host and curate a **EU-wide knowledge base** for childhood cancer, providing **insights** on the disease and liaising **future opportunities** for collaboration.

This portal will act as an **information exchange hub** for access, data collection and storage of available information, datasets, solutions, crowdsourced assets and innovation tools.

Bringing together healthcare professionals, young cancer patients and AI experts

We seek to connect **key European stakeholders** in Childhood Cancer by means of **eXplainable AI** to facilitate the interaction and cooperation of top actors among them: leading experts in paediatric oncology, medical entities, technology developers, research institutions and European Reference Networks.

Community building will help develop working streams with digital initiatives designed to support diverse paediatric cancer pathways.



An engaged
Community

Why Childhood Cancer?

Many paediatric cancers are proving to have a genetically distinct component from their adult counterparts, demonstrating the need for **childhood-specific genomic studies, datasets and therapeutic strategies**

The facts

Specificity is the mark

Pediatric cancer is characterized by sudden occurrence, no early symptoms and a high recovery rate

Early detection is key

Pediatric cancers grow fast and may have already spread to other parts of the body by the time they are diagnosed

Young survivors deserve better

Up to 30% of children suffer severe long-term consequences. Comprehensive care, treatment and follow-up are essential for better recovery and quality of life

Artificial Intelligence to improve cancer care

EU4CHILD will provide **top-quality, evidence-based AI services** to accelerate the **diagnosis, prognosis** and **treatment** of children with cancer

Our tools



AI medical imaging

Using novel 2D and 3D **Convolutional Neural Networks** for **anomalies detection** (support to radiologists)



Natural Language Processing

For **semantic understanding**, **summarization** and **semi-automatic annotation** of medical information

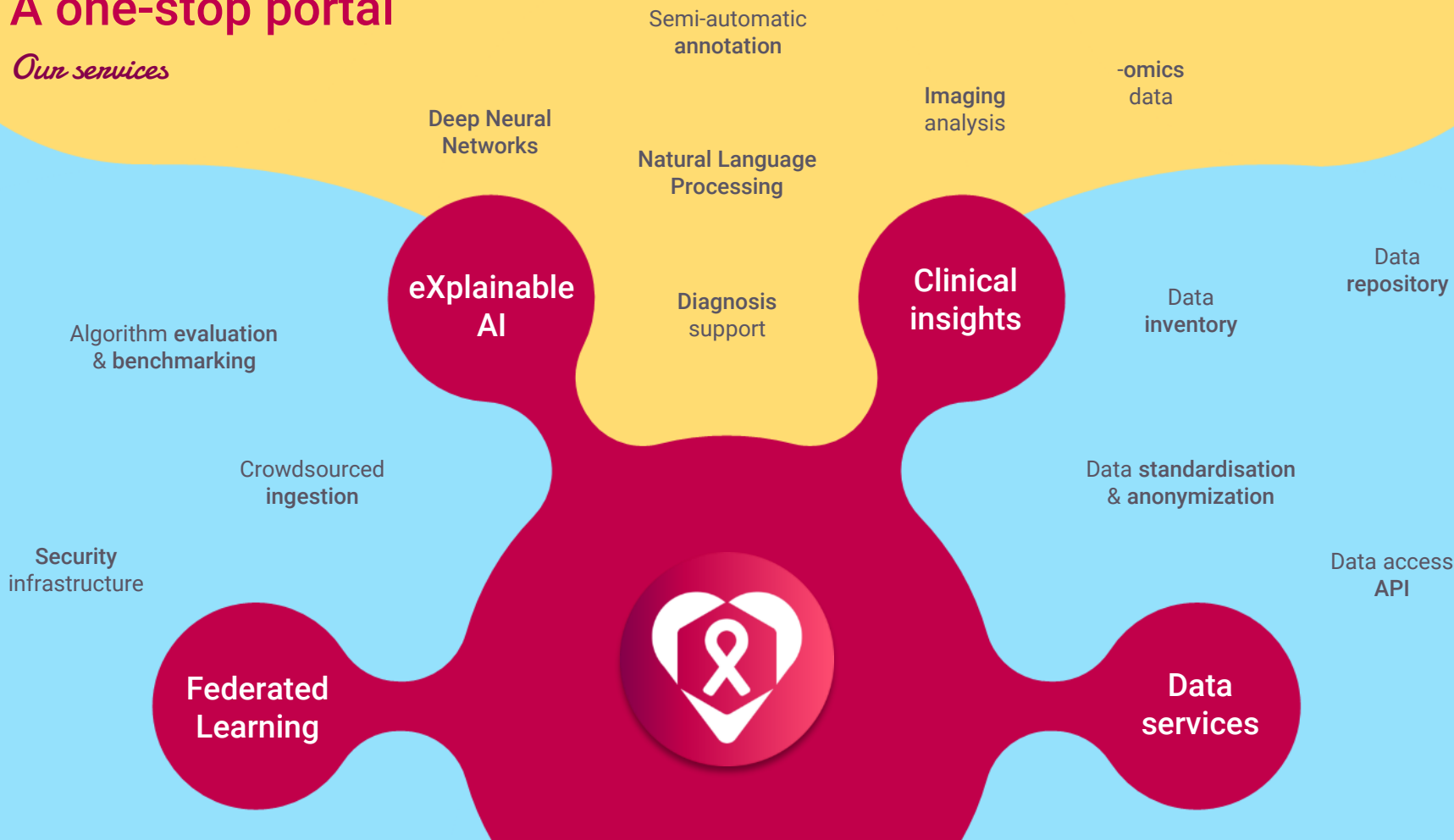


Deep Neural Networks

For **classification**, **forecasting** and **prognosis** support, assessment of **treatment evolution** and **quality of life metrics** after treatment ends

A one-stop portal

Our services



Breaking down health data silos

We will fight the reluctance to share health-related data through solid **ethics** and **data governance**

Our proposition

Fostering Open innovation

Engaging the clinical community, academia and high-tech companies via a bottom-up approach to nurture trust and transparency

Enabling interoperability

Exploring solutions to facilitate data formatting, metadata description mapping and harmonization between heterogeneous data sources

Top AI performance and quality

Through advanced features extraction and novel AI Generative models for data augmentation

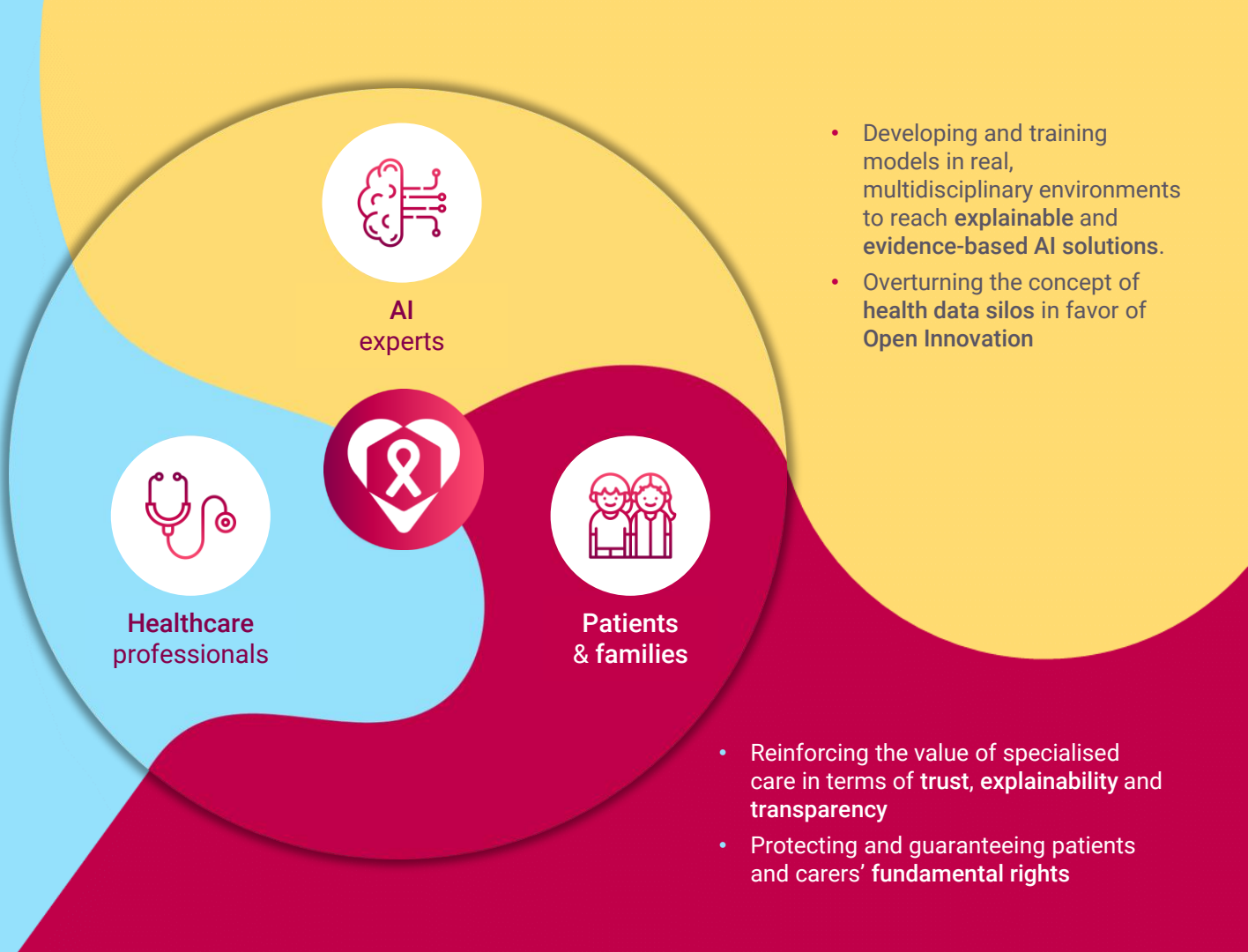
A sound data strategy

FAIR principles, advanced anonymization, encryption and Federated infrastructures to ensure security, privacy and integrity of patient data

The power of working together

Our added value

- Supporting and improving **quality standards** for clinical decision-making
- Enabling **personalised patient care**, particularly in treatment selection and patient response
- Reducing work overload by speeding up routine tasks and optimizing **time management**



- Developing and training models in real, multidisciplinary environments to reach **explainable and evidence-based AI solutions**.
- Overturning the concept of health data silos in favor of **Open Innovation**

- Reinforcing the value of specialised care in terms of **trust, explainability and transparency**
- Protecting and guaranteeing patients and carers' **fundamental rights**

We are team players

6 partners from **4 EU countries** have joined forces to make EU4CHILD a reality. Together, we bridge the gap between **cutting-edge AI**, healthcare expertise in **pediatric oncology**, impact creation and **community building**



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