AI at the frontline of oncology

Redefining cancer care through data and collective intelligence

A €169 billion opportunity reshaping precision, performance, and value in global healthcare.

PNO INNOVATION

Executive summary

Artificial intelligence (AI) is transforming how cancer is diagnosed, treated, and managed. With global investment in AI-enabled healthcare expected to exceed €169.7 billion by 2030, oncology is emerging as the proving ground for data-driven medicine.

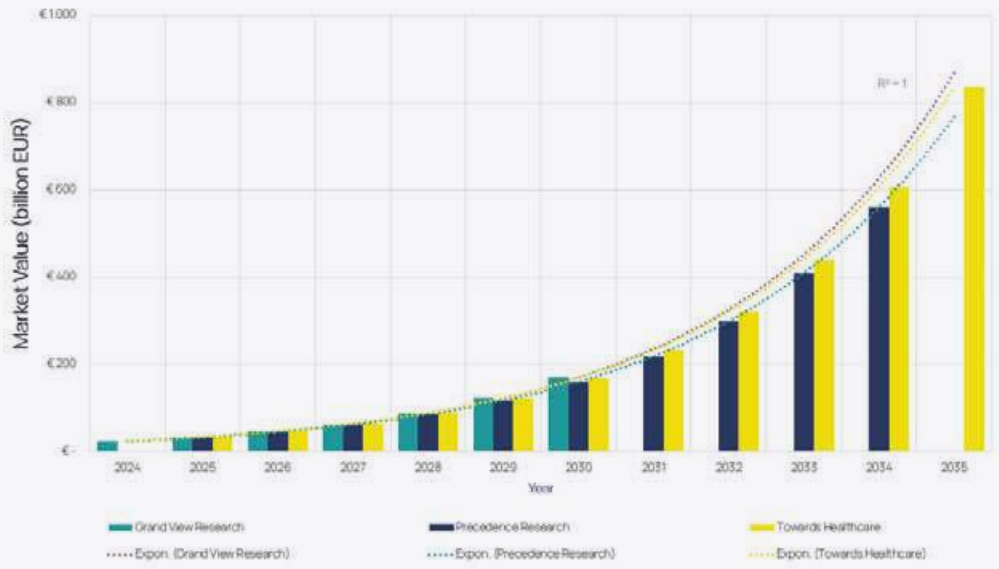
Early European projects have already achieved tangible results—reducing diagnostic turnaround times and improving treatment accuracy through predictive analytics. These outcomes demonstrate how AI can enable more efficient, equitable, and patient-centred healthcare systems.

> The organisations that connect data with insight—and insight with execution—will define the future of oncology.

The landscape: a market in motion

AI is reshaping oncology's clinical and economic landscape. Across Europe, algorithms enhance early detection, automate imaging analysis, and optimise clinical trial design. These advances accelerate diagnosis, personalise therapy, and deliver measurable efficiency gains.

With an expected 38.6% annual growth rate, AI represents both a healthcare revolution and an investment opportunity. As global adoption accelerates, Europe's leadership will depend on scaling innovation responsibly—balancing progress with governance, transparency, and trust.



AI in Healthcare – Global Market Forecast

From insight to implementation

Successful AI adoption requires alignment among research, policy, and funding stakeholders. A data-driven framework connects these dimensions, translating potential into performance.

This approach—seen across leading European initiatives—integrates four interdependent elements:

Vision and Strategy

Set evidence-based priorities aligned with patient outcomes and policy direction.

Financing and Support

Mobilise public and private investment to accelerate responsible innovation.

Execution and Governance

Ensure transparent collaboration and compliance throughout deployment.

Digital Leverage

Use analytics and infrastructure to scale impact and measure results.

When these dimensions align, organisations achieve faster adoption, measurable efficiency, and improved outcomes—turning foresight into execution.

Transformation happens where evidence, investment, and execution converge.

Case examples in action

Across Europe, coordinated innovation is translating research into real-world impact.

The **ONCOVALUE** initiative exemplifies this shift. By combining data mapping, stakeholder engagement, and policy integration, it has supported the systemic adoption of AI solutions in oncology.

Other Notable Collaborations

- **EUCanImage**, **RadioVal**, and **WARIFA** have advanced imaging analytics and clinical data integration, contributing to discussions such as AI-Powered Healthcare in Europe (EFMI MIE 2025, Glasgow).
- **Event X Life Science 2024** in Florence showcased how collaboration strengthens Europe's leadership in AI for healthcare.

Collectively, these initiatives demonstrate how data transparency, shared infrastructure, and policy alignment convert research investment into measurable value.

When collaboration meets insight, innovation scales from pilot to system-level impact.

Are you ready to revolutionise your oncology care strategies and establish a market-leading position in the healthcare industry?

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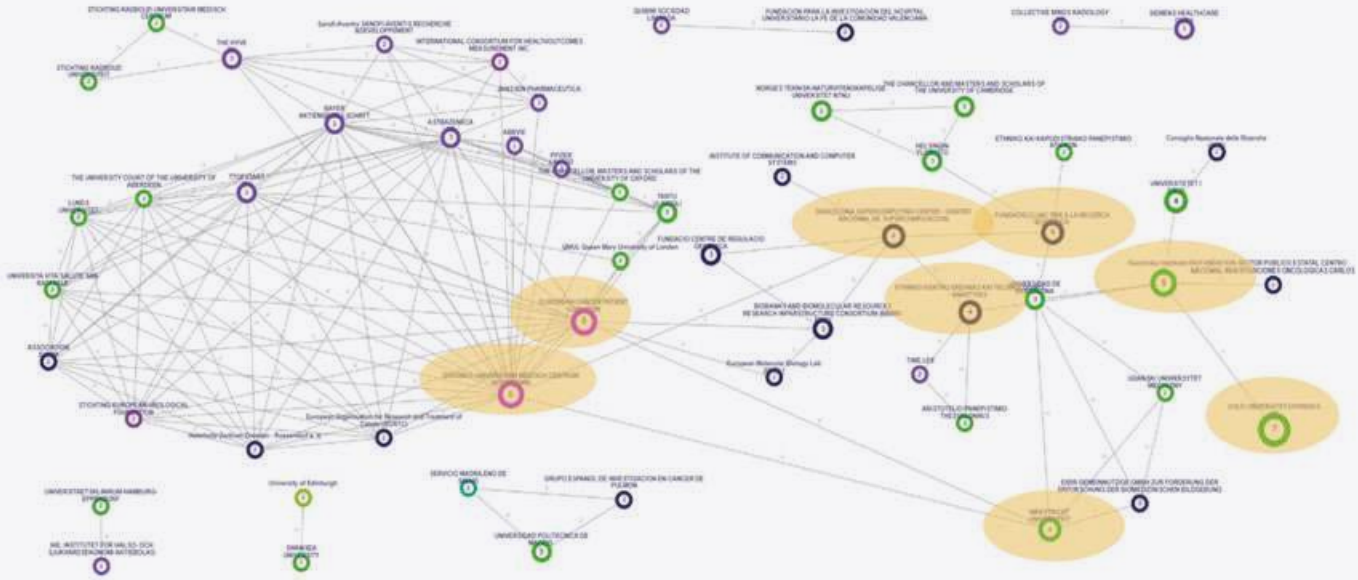
Mapping europe's innovation network

Using the Wheesbee analytics platform, Europe's oncology innovation ecosystem was analysed to explore how funding, research, and partnerships interact. Insights from initiatives such as **ONCOVALUE** show how interconnected ecosystems produce the strongest systemic outcomes.

By visualising the distribution of expertise, partnerships, and investment flows, this mapping helps policymakers and investors identify high-impact collaboration zones, anticipate emerging hubs, and target resources for maximum return.

Institutions such as **Erasmus MC**, **Karolinska Institutet**, and the **European Cancer Patient Coalition** sit at the centre of Europe's innovation network—illustrating how collaboration accelerates adoption and amplifies patient outcomes.

> Collaboration remains Europe's greatest advantage in shaping the global oncology landscape.



ONCOVALUE Network Map

Applied solutions in precision oncology

AI's practical contribution to oncology is visible through tools that convert clinical data into actionable decisions. **Flagship European solutions**, including ONCOVALUE's outcomes, illustrate how data analytics enhances precision medicine and operational performance.

1
NLP Tool

Converts unstructured clinical text into actionable insights, strengthening evidence-based decisions.

2
Annotation Framework

Standardises medical text annotation, improving data quality and scalability of AI training

3
AI-Based CT Image Analysis

Improves diagnostic accuracy and workflow efficiency through automation and predictive modelling.

4
HTA Framework

Embeds value-based assessment into innovation planning and reimbursement decisions.

These solutions illustrate how applied intelligence bridges the gap between research and healthcare delivery—transforming oncology from research-driven to results-driven care.

Applied intelligence is turning precision oncology into operational reality.

Market readiness and competitive outlook

AI in oncology has matured from potential to performance—delivering measurable efficiency gains, improved patient outcomes, and distinct market advantages.

The next phase of leadership will belong to organisations that operationalise data strategies while ensuring regulatory readiness and transparency.

Growth Momentum
NLP and precision oncology are among the fastest-growing segments in digital health.

Regulatory Alignment
Early compliance with EU AI and data governance frameworks fosters trust and resilience.

Scalable Deployment
Interoperable platforms and modular architectures enable efficient, cross-border implementation.

Leaders are now merging governance and business strategy to create value through efficiency, patient outcomes, and market differentiation.

> Future leaders will be defined by their ability to turn insight into execution and innovation into sustained impact.

Outlook and strategic priorities

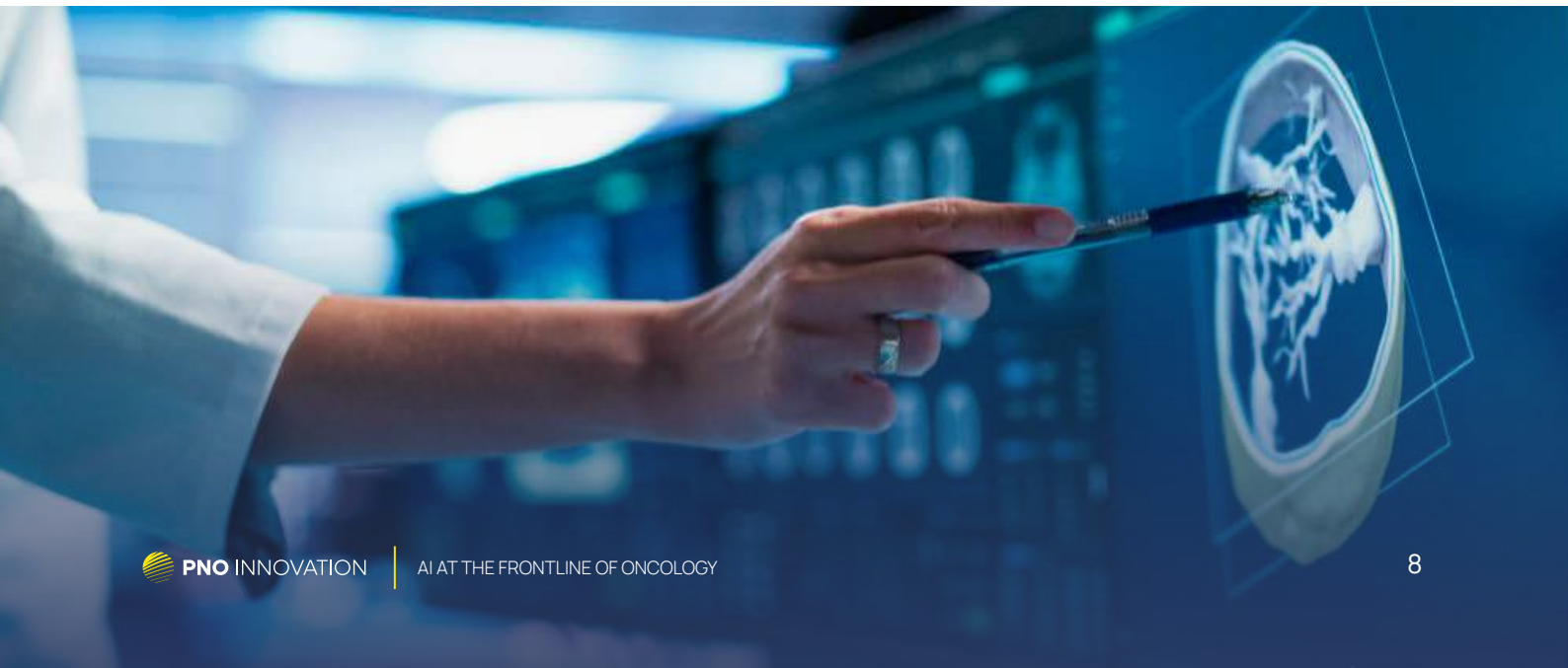
Europe's oncology landscape is entering a new era—defined by responsible AI, connected ecosystems, and measurable outcomes. Continued progress relies on integrating data, policy, and foresight to achieve sustainable transformation.

Initiatives such as ONCOVALUE, WARIFA, and others demonstrate how collective intelligence translates research into tangible benefits for patients and systems. As EU funding and AI governance frameworks evolve, new opportunities for collaboration will shape the next wave of adoption.

For decision-makers, three priorities are clear:

- Invest in intelligence, not just infrastructure. Data maturity drives long-term competitiveness.
- Design partnerships that deliver measurable outcomes. Collaboration must generate tangible value for patients and systems.
- Adopt agile governance that builds trust and transparency. Regulatory readiness underpins credibility and sustainable growth.

The next frontier in oncology will be defined by intelligent adoption—turning data into enduring value for patients, systems, and society.



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