



D10.2 Demand Open Innovation

Deliverable No.	D10.2	Due Date	28/02/2025
Description	Demand Open Innovation		
Type	Report/	Dissemination Level	CO
Work Package No.	WP10	Work Package Title	Open Innovation Approach
Version	1.0	Status	Final



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History

Date	Version	Change
02/12/2024	0.1	Initial document
03/02/2025	0.1	Challenges included
17/02/2025	0.3	Release for peer review and quality review
27/02/2025	1.0	Final version

Key data

Keywords	Open Innovation, co-creation, Stakeholder Engagement, Challenges, Innovation Hub
Lead Editor	Marta Perez (MDT)
Internal Reviewer(s)	UoW, INETUM

Abstract

The ODIN Open Innovation framework represents a demand-driven, collaborative approach to digital transformation in healthcare. By integrating AI, robotics, and IoT solutions into hospital environments, ODIN ensures that technological advancements are aligned with real-world needs, facilitating higher adoption rates and improved patient care.

This deliverable outlines the key methodologies and findings from ODIN's stakeholder engagement, co-creation workshops, Open Calls, and Market Scouting initiatives. Through extensive interviews and direct collaboration with hospitals, ODIN has successfully identified critical healthcare challenges, allowing innovators to develop tailored solutions that address operational inefficiencies, workforce shortages, and digital integration barriers.

Statement of originality

This deliverable contains original unpublished work except where clearly indicated otherwise. Acknowledgement of previously published material and of the work of others has been made through appropriate citation, quotation or both.

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1 About this deliverable

1.1 Deliverable context

Table 1. Deliverable context

PROJECT ITEM IN THE DOA	RELATIONSHIP
Project Objectives	To facilitate open innovation and integration of advanced technologies within hospital environments.
Exploitable results	<ul style="list-style-type: none"> - HUB: A structured platform that facilitates collaboration between hospitals, startups, SMEs, and research institutions, ensuring that technological solutions are demand-driven and co-created with end-users. - A structured methodology for identifying hospital needs and matching them with innovative solutions from the market, ensuring a hospital-driven rather than technology-pushed approach.
Workplan	The workplan of the ODIN Open Innovation framework focuses on engaging hospitals, technology providers, and researchers through structured co-creation activities, market scouting, Open Calls, and pilot testing, ensuring that AI, robotics, and IoT solutions are demand-driven, validated in real hospital environments, and scalable for widespread adoption.
Milestones	The milestone of the ODIN Open Innovation framework is the successful establishment of the ODIN Innovation Hub as a sustainable ecosystem that enables continuous collaboration between hospitals, technology providers, and researchers, facilitating the co-creation, validation, and adoption of AI, robotics, and IoT solutions in real hospital environments.
Deliverables	D10.2 is an input for all the upcoming deliverables in WP10 and partial input of the deliverables in WP9.
Risks	<p>The main risks in the ODIN Open Innovation framework include:</p> <ul style="list-style-type: none"> - Low engagement from hospitals and end-users, which could limit the co-creation process. - Financial sustainability concerns, affecting the long-term viability of the ODIN Innovation Hub. - Resistance to change from hospital staff, which could slow adoption.

2 Introduction

This introduction chapter sets the foundation for understanding the role of Open Innovation on the Demand Side within the ODIN project and the Horizon Europe framework. The next chapters will further elaborate on the methodologies, case studies, and strategies implemented to ensure effective deployment and sustainability of demand-driven innovations in European healthcare.

2.1 Context and relevance of the demand-side approach

In the context of the ODIN project, the demand-side approach plays a fundamental role in shaping innovations that are directly aligned with the actual needs of hospitals, healthcare professionals, and patients. Unlike traditional supply-driven models where technology is developed first and then introduced into the market, the demand-driven approach ensures that technological solutions are crafted based on real-world requirements, enhancing their usability and acceptance in clinical environments.

A key challenge in modern healthcare systems is the gap between technological advancements and their effective implementation in hospitals. Many innovations fail to scale because they do not address the specific operational, financial, or regulatory constraints that hospitals face. By incorporating end-user perspectives from the beginning, ODIN ensures that artificial intelligence (AI), robotics, and the Internet of Things (IoT) solutions are integrated seamlessly into hospital environments without disrupting existing workflows.

Furthermore, the demand-side approach is essential for tackling pressing healthcare challenges, such as staff shortages, patient safety, resource optimization, and digital transformation. This methodology allows hospitals to actively co-design solutions that improve efficiency, enhance patient care, and ensure long-term sustainability.

2.2 The role of the demand side in ODIN

The ODIN project is a groundbreaking initiative that leverages Artificial Intelligence (AI), robotics, and the Internet of Things (IoT) to develop smart hospitals across Europe. A key factor in ODIN's success is its demand-driven innovation model, ensuring that new technologies directly address the needs of healthcare providers. This subchapter explores the role of the demand side, primarily composed of hospitals, healthcare providers, and public health authorities, in shaping, adopting, and validating technological innovations within ODIN.

The Role of the Demand Side in ODIN

The demand side in ODIN consists of hospitals, healthcare organizations, and regulatory authorities that define real-world challenges and functional requirements for AI-driven healthcare solutions. These stakeholders ensure that technologies developed within the ODIN ecosystem are clinically relevant, operationally efficient, and scalable.

Unlike traditional top-down innovation approaches, where technology is developed first and then adapted to market needs, ODIN's demand-driven approach allows healthcare providers to co-create solutions with technology suppliers, ensuring that new technologies align with clinical workflows and regulatory frameworks.

Key Responsibilities of the Demand Side

1. Identifying Healthcare Needs and Challenges

Hospitals and healthcare providers are the primary source of insight into operational and clinical inefficiencies. Their role is to identify key challenges, such as:

- Logistical inefficiencies in managing hospital resources.
- Healthcare workforce shortages requiring AI-driven workflow optimization.
- Patient safety concerns, including infection control and medical errors.
- Integration of AI-powered decision support systems to enhance diagnosis and treatment.

By clearly articulating these needs, the demand side ensures that the supply side (technology providers) focuses on high-impact innovations that improve efficiency, reduce costs, and enhance patient outcomes.

2. Participating in the Co-Creation Process

Co-creation is at the core of ODIN's innovation model. Healthcare providers work alongside technology developers, AI researchers, and robotics engineers to:

- Validate AI models and algorithms for hospital applications.
- Test robotics and IoT solutions in real hospital environments.
- Ensure usability and interoperability of new digital tools with existing hospital infrastructure.

This iterative process allows hospitals to provide real-time feedback, refining technologies to better suit their operational environments.

3. Enabling Sustainable Digital Transformation

Beyond immediate adoption, the demand side also contributes to the long-term scalability and sustainability of ODIN technologies. This includes:

- Training healthcare professionals to effectively use AI-powered tools.
- Developing policies and protocols for AI-assisted decision-making.
- Collaborating with regulatory bodies to ensure ethical and legal compliance.

Hospitals act as champions of innovation, driving cultural and organizational change to facilitate the seamless integration of AI into everyday healthcare operations.

The Demand-Supply Interaction in ODIN

ODIN operates as a two-sided marketplace, where:

- The Demand Side (Hospitals & Healthcare Providers) defines problems, validates technologies, and adopts innovations.
- The Supply Side (Technology Developers, AI Companies, and Robotics Firms) creates AI-powered solutions tailored to hospital needs.
- Digital HUB act as intermediaries, facilitating collaboration and scaling successful innovations across multiple hospitals.

This interaction fosters an innovation ecosystem where healthcare providers drive the technological agenda, ensuring that solutions are practical, impactful, and aligned with real-world clinical challenges.

Impact of the Demand Side on ODIN's Success

The demand side's involvement ensures that ODIN:

- Delivers AI, robotics, and IoT solutions that are patient-centric and clinically relevant.
- Accelerates the adoption of AI-driven healthcare applications through structured validation.
- Creates an economically viable model for scaling healthcare innovations.
- Facilitates regulatory acceptance and hospital-wide integration of new technologies.

Without active participation from hospitals and healthcare providers, AI and robotics innovations might face low adoption rates, regulatory hurdles, and misalignment with actual medical needs.

As a conclusion, the demand side in ODIN is not a passive recipient of technological advancements but an active co-creator, ensuring that innovations truly enhance healthcare delivery. Through co-creation, procurement engagement, validation trials, and long-term integration strategies, hospitals play a pivotal role in transforming healthcare into a more efficient, AI-driven ecosystem.

By following this demand-driven innovation approach, ODIN is setting the foundation for a future where smart hospitals leverage AI, robotics, and IoT to deliver safer, faster, and more personalized care.

3 ODIN Open Innovation framework

3.1 Open Innovation Strategy

The ODIN Open Innovation framework is a key element in the development and deployment of demand-driven solutions. This framework provides a structured and collaborative approach to integrating healthcare needs into the innovation pipeline.

In the following figure, the ODIN Open Innovation framework is presented



Figure 1. Strategy Open Innovation

The figure illustrates the Strategy of Open Innovation within the ODIN project, highlighting the dynamic interaction between the demand side (hospitals), the supply side (tech providers), and the ODIN Innovation Hub as a central facilitator. At its core, the ODIN Innovation Hub serves as a two-way communication and matching platform, ensuring that hospitals' needs are effectively conveyed to technology providers, who, in turn, offer solutions tailored to those requirements.

Hospitals, representing the demand side, express their problems and needs in terms of operational challenges, efficiency gaps, and technological limitations. These requirements are communicated to the ODIN Innovation Hub, which processes and matches them with suitable solutions offered by the supply side, comprising tech providers and innovators. This interaction fosters change and innovation management, ensuring that proposed solutions align with real-world hospital demands.

On the supply side, technology providers develop and offer innovative solutions that address the specific needs expressed by hospitals. Through procurement mechanisms, these solutions are evaluated and implemented within hospital environments, closing the loop of innovation. The ODIN facilitator plays a crucial role in managing this exchange, ensuring that innovations are not only technically viable but also adaptable to healthcare workflows.

Overall, this strategy enables a collaborative, structured approach to innovation, where demand and supply interact fluidly, ensuring that technological advancements are effectively integrated into hospital ecosystems to drive digital transformation and improve healthcare delivery.

ODIN Innovation Hub

The ODIN Innovation Hub acts as a bridge between healthcare providers and technology developers. It provides a platform for hospitals to share challenges, engage in co-creation, and test new solutions. Through an iterative feedback mechanism, hospitals and stakeholders refine technological solutions before large-scale deployment.

In the following chapters the pillars of the strategy, the community of interest and the HUB, will be further explained.

3.2 Community of interest: Building Collaborative Networks

A Community of Interest (CoI) is a network of stakeholders with shared goals, expertise, and interests, working together to address common challenges and drive innovation. In the context of ODIN, the CoI serves as a vital mechanism for fostering collaboration, knowledge exchange, and co-creation among hospitals, technology providers, policymakers, and research institutions. By leveraging collective intelligence, ODIN's Community of Interest enhances demand-driven innovation, ensuring that smart hospital solutions are aligned with real healthcare needs.

The ODIN Community of Interest is designed to strengthen stakeholder engagement, encourage cross-sector partnerships, and accelerate the adoption of digital health technologies such as AI, robotics, and IoT-enabled solutions. Through structured engagement, the CoI creates an inclusive, dynamic ecosystem where knowledge is shared, best practices are replicated, and innovations are co-developed in a collaborative and iterative manner.

Structure of the ODIN Community of Interest

The ODIN CoI is structured around key stakeholders who play different yet complementary roles in the innovation ecosystem. These includes:

- **Healthcare Organizations & Hospitals:** The primary end-users, providing firsthand insights into operational challenges, patient care needs, and regulatory constraints.
- **Technology Providers & Innovators:** Developers of AI, robotics, and IoT solutions who respond to hospital demands with tailored technologies.
- **Academia & Research Institutions:** Experts in digital health, clinical innovation, and healthcare policy, contributing to the scientific validation and continuous improvement of solutions.
- **Public Sector & Policymakers:** Regulatory bodies and governmental agencies ensuring that innovations comply with legal and ethical standards, while also facilitating funding and policy support.
- **Investors & Industry Partners:** Providing financial support and market access, enabling the scalability and sustainability of ODIN solutions.

Each of these groups contributes to a robust, multi-disciplinary network, fostering open dialogue, co-creation, and collaborative problem-solving.

The Role of the Community in Open Innovation

The ODIN Community of Interest plays a central role in the co-creation process, ensuring that technology development is not just industry-driven, but truly demand-driven. By fostering collaboration across multiple domains, the Col helps:

- Identify Real-World Challenges: Hospitals and healthcare providers articulate their needs, ensuring that innovations address pressing pain points.
- Facilitate Knowledge Exchange: Best practices, lessons learned, and implementation strategies are shared across institutions, reducing redundancies and improving efficiency.
- Accelerate Solution Development: With direct engagement from hospitals, solutions undergo rapid iteration and validation, ensuring faster deployment and higher adoption rates.
- Promote Cross-Sector Synergies: The Col connects different stakeholders, allowing policy, research, and industry to work in unison towards sustainable digital healthcare transformation.

By acting as a bridge between different stakeholders, the Col ensures that innovations in robotics, AI, and IoT are not only technologically advanced but also practically viable and widely accepted.

Community Engagement Strategies

To keep the Community of Interest active and engaged, ODIN has developed a range of strategic initiatives to enhance participation, collaboration, and knowledge-sharing. These include:

1. Webinars & Knowledge Sessions: Regular online events where stakeholders share insights on emerging trends, challenges, and best practices in digital health transformation.
2. Workshops & Co-Creation sessions: Interactive sessions where hospitals and tech providers.
3. Matchmaking & Networking Events: Facilitating direct connections between hospitals, startups, and investors, enabling new collaborations and funding opportunities.
4. Open Calls: Providing opportunities for external innovators to propose and test solutions within ODIN's hospital ecosystem.
5. Online Community Platform: A digital space where stakeholders can exchange knowledge, collaborate on projects, and access relevant research and funding opportunities.

Through these initiatives, ODIN ensures that its Community of Interest remains engaged, dynamic, and continually evolving.

Scaling the Community for Future Impact

As ODIN continues to grow, the Community of Interest will expand beyond its current network, integrating new healthcare institutions, research centers, and technology partners. Future developments include:

- Broadening Stakeholder Participation: Encouraging more hospitals, policymakers, and investors to join the ecosystem.

- Enhancing Digital Collaboration Tools: Developing advanced online platforms for real-time knowledge sharing, project collaboration, and virtual co-creation.
- Strengthening Global Partnerships: Expanding engagement beyond Europe to include international healthcare providers and technology leaders, fostering cross-border innovation.
- Integrating Emerging Technologies: Incorporating new advancements in AI, robotics, and IoT to address evolving hospital needs.

By continuously expanding and adapting, the ODIN Community of Interest will remain a driving force in shaping the future of smart hospitals and digital healthcare transformation.

As a conclusion, the ODIN Community of Interest is a cornerstone of the project's Open Innovation approach, bringing together a diverse ecosystem of stakeholders to co-create, test, and implement cutting-edge healthcare solutions. By fostering collaborative networks, ODIN ensures that innovations are demand-driven, scalable, and aligned with real hospital needs.

Through strategic engagement, continuous knowledge exchange, and structured co-creation processes, the Community of Interest not only accelerates technology adoption but also strengthens the long-term impact of ODIN's digital healthcare solutions across Europe.

3.3 ODIN Innovation HUB: A Platform for Co-Creation

The ODIN Innovation Hub emerge as collaborative engine for Smart Hospital Transformation

The ODIN Innovation Hub is a centralized, dynamic platform designed to foster collaboration between hospitals (demand side) and technology providers (supply side). It serves as an interactive ecosystem where hospitals express their operational and technological needs, and tech providers respond with innovative, tailored solutions. The Hub plays a facilitator role, ensuring a structured and iterative exchange of knowledge, feedback, and practical implementations that align with real-world healthcare challenges.

The Hub as a Two-Way Communication and Matching System

At its core, the ODIN Innovation Hub is a two-way communication system that ensures hospital needs are accurately captured and efficiently addressed. These process involves:

- **Needs Identification**: Hospitals outline challenges related to efficiency, patient safety, resource management, and digital transformation.
- **Solution Offering**: Tech providers propose AI-driven, robotic, or IoT-based solutions tailored to the identified challenges.
- **Iterative Refinement**: Through ongoing collaboration, solutions are tested, adjusted, and optimized before full-scale deployment.

This structure ensures that innovations are demand-driven, rather than technology-pushed, increasing their likelihood of adoption and long-term sustainability in hospital settings.

Facilitating Demand-Driven Innovation

Unlike traditional technology procurement models where hospitals passively acquire pre-developed solutions, the ODIN Innovation Hub emphasizes co-creation and demand-driven innovation. Hospitals are active participants in the development process, ensuring that the

technologies they adopt align with their specific workflows and constraints. This collaborative approach results in:

- More effective and user-centered innovations.
- Greater adoption rates as stakeholders are involved from the beginning.
- Faster identification of gaps and necessary adjustments.

Supporting Change and Innovation Management

One of the major challenges in healthcare digital transformation is change resistance. Many hospital staff and administrators hesitate to implement new technologies due to lack of familiarity, interoperability concerns, and training gaps. The ODIN Innovation Hub mitigates these barriers by:

- Providing structured guidance on how to integrate new solutions into hospital workflows.
- Organizing training programs and hands-on demonstrations to ease the transition.
- Offering continuous feedback loops to refine innovations according to user experience.

By facilitating structured change and innovation management, the ODIN Hub ensures a smooth transition from traditional to smart hospital ecosystems.

Enabling Scalable and Sustainable Innovation

The Hub is designed not just for individual hospital improvements but for scalability across multiple healthcare institutions. By gathering and analyzing insights from different hospitals, it identifies patterns of common needs, allowing for the development of standardized, yet adaptable solutions. The scalability aspect ensures:

- Cost-effectiveness, as solutions can be applied across multiple hospitals with minimal adjustments.
- Long-term sustainability, as solutions are continuously refined based on real-world implementation feedback.

Enhancing Procurement and Open Innovation

Through the ODIN Innovation Hub, hospitals gain access to an open innovation marketplace, where they can discover, evaluate, and procure cutting-edge solutions tailored to their needs. This enhances procurement by:

- Allowing hospitals to assess multiple vendors and select the most suitable solutions.
- Encouraging tech providers to develop solutions aligned with market needs, rather than speculative R&D.
- Facilitating cross-institutional collaboration, where hospitals share insights on successful implementations.

As a conclusion, the ODIN Innovation Hub is more than a matchmaking platform—it is a catalyst for healthcare transformation. By fostering continuous interaction between hospitals and tech providers, ensuring stakeholder engagement, and streamlining demand-driven innovation, the

Hub paves the way for the future of smart, data-driven, and patient-centric hospitals across Europe

3.4 The role of Open call in ODIN

To expand and accelerate healthcare innovation, ODIN leverages Open Calls, which allow external stakeholders to contribute AI, robotics, and IoT-enabled solutions to address pressing hospital needs. Open Calls ensure that ODIN remains an evolving, inclusive ecosystem, constantly integrating fresh ideas and emerging technologies.

Objectives of ODIN Open Call

1. Identify and attract external innovators—startups, SMEs, and research institutions—that can provide high-impact healthcare solutions.
2. Foster an ecosystem of collaboration by creating opportunities for joint development between hospitals and technology providers.
3. Bridge the gap between research and market adoption by supporting the validation and scaling of emerging digital health solutions.
4. Ensure a demand-driven approach where new technologies directly address the needs identified by hospitals.

By utilizing Open Calls, ODIN can incorporate breakthrough innovations while maintaining a structured process for evaluation, funding, and implementation.

The Future of ODIN's Co-Creation and Open Call Strategy

As ODIN continues to evolve, the co-creation and Open Call strategy will expand in scope and impact. Key areas for future development include:

- Strengthening stakeholder engagement by increasing the number of hospitals and healthcare professionals participating in co-creation activities.
- Enhancing cross-sector partnerships by integrating more research institutions, regulatory bodies, and policymakers.
- Optimizing Open Call processes to attract a broader range of solutions and scale implementations across multiple hospitals.
- Building long-term sustainability by ensuring that co-created solutions receive continued support, funding, and integration into hospital procurement systems.

By refining and expanding these strategies, ODIN aims to cement its role as a leading force in healthcare innovation, bridging the gap between demand-driven needs and cutting-edge technology solutions.

4 Demand side methodology and approach

The demand-side approach within the ODIN project ensures that technological innovations in healthcare are developed in response to real needs identified by stakeholders, including hospitals, healthcare professionals, and patients. By employing structured methodologies for data collection and stakeholder engagement, ODIN ensures that solutions are aligned with operational, clinical, and regulatory requirements.

This chapter outlines the methodologies used to gather and analyze demand-side insights, the co-creation frameworks applied, and the key approaches for translating stakeholder needs into actionable innovation pathways.

4.1 Stakeholder engagement strategy

A key aspect of the demand-side methodology is engaging with a diverse range of stakeholders who provide valuable insights into hospital needs. These stakeholders include healthcare providers, hospital administrators, medical professionals, technology developers, patients, and regulatory bodies. Each group contributes a unique perspective, ensuring a comprehensive understanding of the challenges and opportunities in hospital digital transformation.

To engage these stakeholders effectively, ODIN implements a series of structured activities, including workshops, webinars and interviews. Interviews provide deeper insights into specific issues, enabling a more detailed exploration of user experiences and expectations. Workshops facilitate direct interaction between hospitals and technology developers, fostering collaborative problem-solving and iterative solution design. Webinars facilitate knowledge exchange, collaboration, and co-creation—essential components for driving demand-driven innovation in healthcare.

Moreover, ODIN's stakeholder engagement strategy emphasizes two-way communication. Hospitals articulate their needs and expectations, while technology providers propose solutions that are continuously refined based on user feedback. This iterative process ensures that the resulting innovations are both functional and well-suited to the realities of healthcare environments.

4.2 Data collection methods

The demand-side approach relies on a multi-faceted data collection strategy to ensure that all relevant challenges and needs are accurately identified. A combination of qualitative and quantitative methods is used to gather actionable insights that shape ODIN's innovation strategy.

Interviews

As part of the ODIN Innovation Hub's demand-driven approach, a series of in-depth interviews were conducted with key stakeholders from the demand side, specifically hospital representatives from across the ODIN network. The primary objective of these interviews was to gain a deep understanding of the challenges, priorities, and expectations of hospitals when it comes to adopting AI, robotics, and IoT-enabled solutions.

By engaging directly with healthcare professionals, hospital administrators, and innovation managers, the ODIN team ensured that the technological developments within the project align

with real-world hospital needs. This co-creation approach strengthens the relevance, usability, and adoption potential of ODIN's smart hospital solutions. These interviews were done in cooperation with the exploitation work package (WP9)

Series of webinars

Webinars have played a crucial role in engaging stakeholders, fostering collaboration, and driving knowledge exchange within the ODIN Innovation Hub. As part of the initiative's broader strategy to facilitate demand-driven healthcare innovation, a series of structured webinars have provided hospitals, technology providers, researchers, and policymakers with opportunities to learn, collaborate, and shape the future of smart hospitals.

Three key webinars have been organized so far, each addressing critical aspects of digital healthcare transformation: the Kick-off Webinar, a Robotics in Healthcare Webinar, and a Change Management Webinar. These interactive sessions have not only introduced ODIN's vision and objectives but have also served as a platform for tackling operational and implementation challenges in the integration of AI, robotics, and IoT in hospital environments.

1. The Kick-off Webinar: Introducing the ODIN Community and Aligning Expectations

The first webinar, serving as the Kick-off session for the ODIN Community, was designed to introduce stakeholders to the ODIN Open Innovation approach and to create an interactive dialogue between participants and project leaders. More than 50 representatives from hospitals, healthcare organizations, technology providers, and industry experts attended, reflecting the diverse stakeholder engagement strategy of the ODIN Innovation Hub.

During this session, the ODIN Community concept was formally presented, including the project's objectives, scope, and expected impact on the healthcare sector. The discussion focused on ensuring that the expectations of hospitals, technology developers, and researchers were aligned, paving the way for effective co-creation and collaboration.

Breakout sessions were organized to capture insights from the audience, focusing on key challenges, expectations, and desired outcomes from ODIN's innovation ecosystem. These discussions provided valuable input, helping shape the priority areas for engagement, including technology adoption, regulatory alignment, procurement models, and knowledge-sharing mechanisms.

This Kick-off Webinar set the foundation for ongoing collaboration, ensuring that all participants understood the importance of open innovation and demand-driven co-creation in shaping future healthcare technologies.

2. The Robotics in Healthcare Webinar: Unlocking the Potential of Automation

Following the successful Kick-off session, ODIN organized a dedicated webinar on robotics in healthcare, aimed at exploring the role of robotic technologies in hospital workflows, patient care, and operational efficiency. This session was particularly relevant as robotics is a key enabler within ODIN's Open Innovation framework, with applications ranging from surgical assistance to logistics, rehabilitation, and AI-driven diagnostics.

The Robotics in Healthcare Webinar built upon the insights gathered during the Kick-off session, further refining discussions on the challenges and opportunities related to implementing robotic solutions in hospitals. The event brought together over 40 key stakeholders from across the

healthcare and technology ecosystem, creating a collaborative environment for knowledge exchange and innovation adoption.

The session opened with an overview of the ODIN project's vision and how robotics can contribute to hospital efficiency and patient-centered care. Distinguished speakers, including Silvio Pagliara (University of Warwick), Sergio Guillen (MySphera), and Gastone Ciuti (Scuola Superiore Di Studi Universitari e Di Perfezionamento Sant'Anna), supported by Marta Pérez, provided insights into how robotics can be effectively integrated into hospital operations.

To encourage active participation, the event was structured into breakout sessions, allowing attendees to share practical challenges in adopting robotics within healthcare settings. Discussions focused on:

- Technical and operational barriers hospitals face when integrating robotic solutions.
- Strategies for scaling up robotic applications, ensuring broader adoption across healthcare institutions.
- Best practices and lessons learned, drawing from real-world case studies of robotic deployment in hospitals.

Key takeaways from this session emphasized that robotic technologies must be developed in direct collaboration with hospitals to ensure they are demand-driven and aligned with clinical workflows. The importance of co-creation, regulatory adaptation, and staff training was also highlighted, reinforcing the need for an iterative approach to robotic implementation.

By facilitating an open dialogue between hospitals and technology providers, this webinar strengthened ODIN's commitment to bridging the gap between innovation and real-world healthcare needs.

3. The Change Management Webinar: Overcoming Barriers to Digital Transformation

One of the biggest challenges in adopting AI, robotics, and IoT solutions in hospitals is change resistance—a key barrier that the ODIN Innovation Hub actively addresses. To support hospitals in overcoming these challenges, ODIN hosted a Change Management Webinar, focusing on strategies for successfully implementing digital healthcare innovations.

This session brought together hospital administrators, change management experts, and healthcare professionals to discuss:

- Common barriers to technology adoption in hospitals, including resistance from staff, budget constraints, and regulatory hurdles.
- Effective strategies for leading change, emphasizing the importance of training, stakeholder engagement, and leadership buy-in.
- Best practices from successful digital transformation projects, where hospitals shared lessons learned in AI, robotics, and IoT adoption.
- The role of healthcare professionals in co-designing solutions, ensuring that digital tools align with clinical workflows and improve patient care.

The discussion highlighted that technology alone is not enough to drive transformation—hospitals must adopt structured change management strategies that involve all stakeholders, from hospital leadership to frontline healthcare workers. It also emphasized the need for progressive adoption, where hospitals gradually test, refine, and scale new solutions instead of attempting large-scale implementation at once.

One of the key outcomes of the webinar was a set of recommendations for hospitals looking to integrate new digital solutions, including:

- Early engagement of clinical staff to ensure buy-in and reduce resistance.
- Clear communication of benefits and expected outcomes to all stakeholders.
- Ongoing training programs to support healthcare professionals in adapting to new technologies.

This webinar provided practical guidance for hospitals preparing to adopt smart hospital solutions, reinforcing ODIN's role as a trusted knowledge hub for digital healthcare transformation.

Co-Creation Workshops

In addition, co-creation workshops play a crucial role in bringing together healthcare professionals and technology developers. These interactive sessions allow participants to collaboratively design, test, and refine technological solutions before full-scale deployment. This participatory approach ensures that proposed innovations align with hospital needs and can be seamlessly integrated into existing workflows.

As part of the ODIN Innovation Hub's co-creation strategy, two co-workshop sessions were organized to facilitate hands-on collaboration between hospitals and technology providers. These workshops served as practical demonstration sessions, allowing hospital stakeholders to interact directly with cutting-edge technologies, assess their real-world applicability, and provide immediate feedback to developers.

The co-workshop sessions played a vital role in bridging the gap between innovation and practical hospital implementation, ensuring that solutions developed through ODIN's Open Innovation framework are demand-driven, user-friendly, and tailored to hospital needs.

1. Live Demonstration of Mosaic's Robotic Solution in Pisa

The first co-workshop session took place in Pisa, where Mosaic presented its robotic solution in a live demonstration. This session was designed to showcase the robot's capabilities in a real hospital setting, allowing stakeholders to:

- Observe how the robotic system operates within a hospital environment.
- Assess its ability to automate key hospital logistics and operational tasks.
- Understand the integration process with existing hospital workflows.
- Provide direct feedback to the developers, helping refine the robot's functionalities.

This live session was particularly valuable because it allowed hospital representatives to engage with the technology in real-time, testing its functionality under real hospital conditions. Healthcare professionals and administrators had the opportunity to ask questions, explore potential applications, and discuss challenges related to adoption and scaling.

One of the key takeaways from this session was that robotic solutions must be highly adaptable to different hospital layouts and operational needs. The discussion highlighted the importance of AI-driven navigation, interoperability with existing hospital IT systems, and staff training to ensure a smooth transition into robotic-assisted workflows.

By conducting this hands-on session, ODIN ensured that Mosaic's robotic solution was not only technologically advanced but also practically viable for hospital adoption.

2. On-Site Evaluation of OHIO's Solution in Pisa

The second co-workshop session was also held in Pisa, focusing on the OHIO project's hospital navigation and asset management solution. This session provided an opportunity for hospitals to see the OHIO product in operation within a real hospital environment, evaluating its effectiveness in tracking and optimizing hospital logistics.

Key aspects explored during this session included:

- Hospital navigation capabilities, helping improve movement efficiency within complex hospital infrastructures.
- Integration with existing hospital management systems, ensuring seamless interoperability.
- Real-time asset tracking and inventory management, reducing inefficiencies in hospital resource allocation.
- Scalability and customization, evaluating how the system could be adapted to different hospital environments.

This on-site evaluation allowed hospital stakeholders to gain firsthand experience of how the OHIO solution functions in day-to-day hospital operations. Additionally, the workshop created a space for technical discussions between hospital IT specialists and OHIO's development team, ensuring that any interoperability concerns, usability challenges, or potential optimizations were addressed in real-time.

Similar to the first session, this workshop emphasized the importance of demand-driven development, reinforcing ODIN's approach of ensuring that hospitals actively participate in shaping the technologies they will eventually adopt.

5 Integration of Demand-Side Inputs into ODIN Innovation

5.1 The ODIN Innovation Hub

The ODIN Open Innovation Hub is a key initiative within the ODIN project, designed to foster innovation and entrepreneurship in the hospital sector. Its main objective is to provide startups, SMEs, and entrepreneurs with the opportunity to develop, implement, and validate their technological solutions in real hospital environments. This is achieved by connecting innovators with reference hospitals, facilitating collaboration and co-creation to enhance efficiency and improve healthcare services.

How the ODIN Open Innovation Hub Works

The Hub functions as an open innovation ecosystem, bringing together hospitals, technology providers, research institutions, and policymakers to create a collaborative space where digital healthcare solutions can be designed, tested, and scaled. Some of the key features include:

- **Identifying Healthcare Challenges:** Hospitals define critical pain points that require innovative solutions.
- **Facilitating Co-Creation and Testing:** Startups and tech companies co-develop and validate solutions in real hospital settings.
- **Providing Access to Resources and Support:** The Hub offers mentorship, funding opportunities, and regulatory guidance to help companies bring their innovations to market.
- **Enabling Networking and Knowledge Sharing:** The platform connects healthcare professionals, investors, and innovators, fostering cross-sector collaboration.

The Role of the ODIN Open Innovation Hub

The ODIN Hub serves as a bridge between hospitals and emerging technological solutions, ensuring that healthcare innovations are not only technically feasible but also address real-world challenges. Its main roles include:

- **Driving Digital Transformation:** Helping hospitals integrate AI, robotics, IoT, and smart automation into their daily operations.
- **Accelerating Innovation Adoption:** Supporting hospitals in identifying, piloting, and implementing new technologies that improve patient care and operational efficiency.
- **Creating a Sustainable Innovation Ecosystem:** By linking hospitals with startups and researchers, the Hub ensures that new healthcare solutions are scalable, sustainable, and adaptable to different healthcare environments.
- **Enhancing Knowledge Exchange:** Organizing webinars, co-creation workshops, and matchmaking events to promote best practices and encourage collaboration.

In summary, the ODIN Open Innovation Hub plays a crucial role in bridging the gap between hospital needs and emerging digital solutions, fostering a culture of innovation and collaboration that is essential for the future of smart, efficient, and patient-centered hospitals.

In the following subchapters the pillars of the ODIN HUB are well described

5.2 Healthcare challenges

The Healthcare Challenges initiative within the ODIN Open Innovation Hub is designed to accelerate the digital transformation of hospitals through collaboration and open innovation. In this framework, participating hospitals identify and present specific innovation challenges they face in their operations. Concurrently, startups, SMEs, and technology providers are invited to propose and develop cutting-edge solutions that address these challenges, leveraging advanced technologies such as AI, robotics, and IoT.

This initiative fosters a synergistic environment where healthcare providers and innovators collaborate closely to co-create solutions that enhance hospital efficiency and patient care. By aligning real-world hospital needs with technological expertise, the Healthcare Challenges initiative not only drives the adoption of innovative solutions but also ensures they are tailored to meet the unique demands of modern healthcare settings.

For instance, challenges have been posed in areas like enhancing mobility in hospitalized geriatric patients through robotic assistance, developing predictive models for patient pathways, and digitizing healthcare records. These challenges provide a platform for innovators to apply their technologies in practical scenarios, facilitating the development of solutions that are both impactful and scalable within the healthcare industry.

In summary, the Healthcare Challenges initiative serves as a catalyst for innovation, bridging the gap between hospital needs and technological advancements, and paving the way for the next generation of smart hospitals.

All the healthcare challenges are described in the next chapter 6.

5.3 Market Scouting

The Market Scouting initiative is a key component of the ODIN Open Innovation Hub, designed to identify and attract innovative technological solutions that address critical challenges in the hospital sector. This process involves actively searching for startups, SMEs, and entrepreneurs that offer disruptive products or services capable of improving the efficiency and quality of healthcare services.

How Market Scouting Works in the ODIN Open Innovation Hub

1. Identification of Hospital Challenges

Hospitals participating in the ODIN Hub present specific operational challenges they face in daily healthcare delivery. These challenges may be related to areas such as patient mobility, hospital logistics, or malnutrition among inpatients.

2. Search for Innovative Solutions

Based on these identified challenges, the ODIN Hub conducts a comprehensive market search to find emerging companies and technological solutions that can effectively address these needs.

3. Evaluation and Selection

The potential solutions are assessed based on their impact, feasibility, and alignment with hospital requirements. The most promising proposals are selected for potential collaboration.

4. Connection and Collaboration

The ODIN Hub facilitates direct connections between selected solution providers and hospitals, promoting co-creation and adaptation of technologies to ensure their effective integration into hospital environments.

Benefits of Market Scouting for Hospitals and Solution Providers

For Hospitals

- Access to a diverse portfolio of innovative solutions specifically tailored to their challenges.
- Faster adoption of digital transformation strategies, enhancing operational efficiency and patient care.
- Reduced technology scouting burden, as the ODIN Hub identifies and validates the best market solutions.

For Solution Providers (Startups & SMEs)

- Opportunity to validate and test their products in real hospital environments.
- Direct feedback from healthcare professionals, ensuring solutions are optimized for real-world implementation.
- Increased market exposure and credibility, facilitating adoption and scaling of their solutions in the healthcare sector.

The Market Scouting process within the ODIN Open Innovation Hub acts as a bridge between hospital needs and emerging technological solutions, fostering an ecosystem of collaborative innovation. By identifying, evaluating, and connecting breakthrough solutions with hospitals, the ODIN Hub accelerates the adoption of digital healthcare technologies, ultimately contributing to the creation of more efficient, data-driven, and patient-centric hospitals.

5.4 Connect with experts

The Connect with Experts initiative within the ODIN Open Innovation Hub serves as a vital platform for fostering collaboration and knowledge exchange among professionals in the healthcare and technology sectors. This initiative aims to bridge the gap between hospitals, startups, SMEs, and industry experts by facilitating direct interactions and partnerships.

Key Features of the Connect with Experts Initiative:

1. **Networking Opportunities:** The platform provides avenues for stakeholders to connect with key players across various industries, including healthcare, Artificial Intelligence, IoT, and robotics, both within Europe and internationally. [cite]turn0search4[
2. **Collaborative Environment:** By creating both physical and virtual spaces, the initiative encourages collaboration between companies, institutions, and entrepreneurs, fostering joint synergies that drive innovation forward.

3. **Access to Expertise:** Participants gain access to a diverse pool of highly qualified researchers and industry professionals, enabling the co-creation and validation of technological solutions in authentic hospital environments.
4. **Mentorship and Support:** The initiative offers support and mentorship to healthcare businesses, assisting them in the development, validation, and enhancement of their products, with the goal of improving internal hospital processes.

By connecting innovators with experts, the ODIN Open Innovation Hub accelerates the digital transformation of hospitals, leading to more efficient and sustainable healthcare solutions.

6 Identified Healthcare Needs and Challenges

The ODIN project has conducted a thorough demand-side analysis to identify the most pressing challenges faced by hospitals and healthcare providers. These challenges highlight the need for innovative, technology-driven solutions that align with real-world hospital operations. The findings are reinforced by insights gathered from the ODIN Open Innovation Hub, which aims to enhance hospital safety, efficiency, and patient care through robotics, IoT, and AI-driven solutions.

This chapter provides an overview of the healthcare needs identified in the project, focusing on five major domains: operational efficiency, clinical decision support, digital transformation, workforce management, and patient-centered care. These areas serve as critical intervention points to guide the development of Key Enabling Resources (KERs) and ensure successful hospital transformation through digital innovation.

6.1 Hospital challenges collected via ODIN Open Innovation

The following tables present a series of challenges that have been identified, analyzed, and prioritized by the hospitals participating in the ODIN Innovation Hub. These challenges are the result of an extensive collaborative effort between healthcare professionals, hospital administrators, and technology experts, aimed at recapitulating the most pressing issues faced by hospitals and defining priority areas for innovation.

Table 2. Enhancing Mobility in Hospitalized Geriatric Patients with Robotic Assistance

Challenge	Enhancing Mobility in Hospitalized Geriatric Patients with Robotic Assistance
Hospital	UCBM – Università Campus Bio-Medico di Roma
Background information	At UCBM, ensuring the well-being and optimal recovery of hospitalized geriatric patients through tailored mobilization is a priority. Their team of physiotherapists, occupational therapists, and expert nurses work diligently to tailor each patient's care plan to their specific abilities and limitations. The approach is gradual and focused on enhancing patients' strength and resistance, with constant monitoring to prevent fatigue, weakness, or discomfort and to adjust treatment as necessary to avoid harmful overexertion.
Challenge description	UCBM seeks to further support their geriatric patients by integrating a robotic assistive platform that allows for independent physical exercise. This innovation aims to improve the effectiveness and quality of care through a patient-tailored approach and involves a quantitative assessment system to monitor the compliance with rehabilitation prescriptions and track therapeutic progress.
What They Are Looking For	UCBM is looking to prevent the loss of mobility in geriatric patients by enhancing the quality and intensity of exercises through minimal monitoring and reduced physical support from therapists. The goal is to facilitate greater independence for patients and improve their overall quality of life.

Table 3. Combating Undernutrition in Hospitalized Geriatric Patients Through Robotic Assistance

Challenge	Combating Undernutrition in Hospitalized Geriatric Patients Through Robotic Assistance
Hospital	UCBM – Università Campus Bio-Medico di Roma
Background information	Undernutrition is a critical concern at UCBM, affecting 20-50% of all hospitalized patients and rising to as much as 90% among geriatric patients. This condition, exacerbated by inadequate nutrient intake and poor dietary choices, poses significant health risks and leads to increased hospital stays and mortality. UCBM identifies dysphagia and errors in meal distribution as significant challenges that not only increase the burden on clinical staff but also adversely affect patient care.
Challenge description	UCBM aims to utilize robotic systems to monitor and assist with food intake and energy consumption in geriatric patients. The goal is to integrate a robotic platform seamlessly into the hospital environment, where it can ensure accurate meal delivery according to clinical prescriptions and patient requests, enhancing nutritional management and reducing staff workload.
What They Are Looking For	UCBM is seeking solutions that use intelligent robotic systems to prevent or reduce undernutrition by ensuring patients receive the proper nutrition with minimal staff intervention.

Table 4. Enhancing Oxygen Therapy in Hospitalized Geriatric Patients Through Robotic Monitoring

Challenge	Enhancing Oxygen Therapy in Hospitalized Geriatric Patients Through Robotic Monitoring
Hospital	UCBM – Università Campus Bio-Medico di Roma
Background information	At UCBM, geriatric patients undergoing oxygen therapy, particularly those with cognitive impairments like dementia or delirium, often face challenges in adhering to their prescribed treatment, which can diminish the therapy's effectiveness and increase side effects. Effective monitoring and administration of oxygen therapy are critical to ensure safety and efficacy.
Challenge description	UCBM is looking to employ a robotic assistive platform equipped with AI and robotic vision to monitor oxygen therapy adherence. This technology will verify the correct use of masks, cannulas, and check oxygen flow and saturation, ensuring that all prescribed standards are met and providing necessary interventions when deviations occur.
What They Are Looking For	The objective is to maximize compliance with oxygen therapy among geriatric patients, enhancing the therapy's benefits and reducing potential risks associated with improper oxygen use.

Table 5. Development of Predictive Models for Patient Pathways

Challenge	Development of Predictive Models for Patient Pathways
Hospital	SERMAS – Servicio Madrileño de Salud
Background information	At SERMAS, understanding that the ability to predict and optimize treatment pathways for patients is crucial for delivering effective and efficient healthcare is fundamental. Millions suffer from various medical conditions, and enhancing patient care through advanced analytics is a priority.
Challenge description	SERMAS seeks to develop predictive models that utilize process mining and deep learning techniques to analyze non-clinical and clinical data. This initiative aims to enable healthcare professionals to accurately predict treatment pathways, which will lead to more informed healthcare decisions and improved patient outcomes across various conditions.
What They Are Looking For	SERMAS is inviting collaborations to support the development and implementation of these predictive models, with a focus on enhancing the precision of patient care management.

Table 6. Mobile Application for Abdominal Scanning in Pregnant Women

Challenge	Mobile Application for Abdominal Scanning in Pregnant Women
Hospital	SERMAS – Servicio Madrileño de Salud
Background information	Regular monitoring of fetal development is essential for a healthy pregnancy, and SERMAS recognizes the need for innovative, non-invasive monitoring solutions. Despite the critical role of medical check-ups, there is a significant opportunity for technological advancements to support pregnant women.
Challenge description	The objective is to develop a mobile application that allows pregnant women to conduct abdominal scans independently or with family assistance. This app will be integrated with the hospital's electronic medical records to ensure seamless communication and will feature anomaly detection, alerts for complications, and robust data security.
What They Are Looking For	SERMAS seeks a mobile app solution that is technically feasible, user-friendly, and compliant with healthcare regulations, designed to enhance prenatal care and ensure the safety and well-being of the pregnancy journey.

Table 7. Development of Predictive Models for Patient Pathways

Challenge	Development of Predictive Models for Patient Pathways
Hospital	SERMAS – Servicio Madrileño de Salud
Background information	Navigating the complex and ever-changing layout of large hospitals can be a daunting challenge for patients and staff alike. SERMAS aims to address this issue with a solution that helps individuals efficiently find their way within hospital premises.
Challenge description	SERMAS proposes to develop a user-friendly navigation app tailored to the specific layout of their hospital, akin to Google Maps. This app will provide clear, precise directions and consider various user needs, including mobility considerations, offering optimized routes and access to detailed hospital layouts.
What They Are Looking For	The desired solution should include an intuitive interface, accurate navigation capabilities, mobility adjustments, customizable preferences, and be available across multiple platforms to ensure accessibility for all users.

Table 8. Reducing Greenhouse Gas Emissions in Healthcare

Challenge	Reducing Greenhouse Gas Emissions in Healthcare
Hospital	CHARITÉ – University Hospital (CUH) Berlin
Background information	At CUH, the connection between hospital operations and environmental health is well understood. Hospitals are significant contributors to air pollution due to their reliance on fossil fuels, smoking areas, and the use of various chemical products. As the demand for healthcare services grows, so does the environmental footprint of these institutions.
Challenge description	CUH is focusing on reducing emissions by improving how chemical products, disinfectants, and medical devices are used within their facilities. The challenge is to transition from one-time use items to reusable or recyclable alternatives, thereby decreasing the overall environmental impact.
What They Are Looking For	CUH seeks innovative solutions that replace single-use applications with sustainable methods that can be implemented within the hospital's operations.

Table 9. Structural Changes in Hospital Personnel

Challenge	Structural Changes in Hospital Personnel
Hospital	CHARITÉ – University Hospital (CUH) Berlin
Background information	Unlike some European countries where the healthcare system includes roles like physician assistants, Germany faces a shortage of healthcare professionals, which impacts patient care efficiency at CUH.
Challenge description	CUH is challenged to restructure its workforce to introduce support roles such as physician assistants and additional nurses. This structural change aims to enhance the support system within the hospital, facilitating more effective patient consultations and treatments.
What They Are Looking For	The goal is to establish a robust support system that integrates additional healthcare roles, improving the efficiency of patient care services within the hospital.

Table 10. Digitization of Healthcare Records

Challenge	Digitization of Healthcare Records
Hospital	CHARITÉ – University Hospital (CUH) Berlin
Background information	While many European countries have embraced digital health records and telemedicine, Germany lags in these areas. CUH still relies heavily on paper records and in-person consultations, which hinders the efficiency of healthcare delivery.
Challenge description	The challenge for CUH is to overcome regulatory barriers and implement a safe, digital system for healthcare records and telemedicine. This transition aims to streamline patient interactions and consultations, making them more efficient and less reliant on traditional, paper-based methods.
What They Are Looking For	CUH is looking for secure, digital solutions that store patient data and facilitate telemedicine, aligning with modern healthcare practices and enhancing patient care efficiency.

Table 11. Enhancing Communication Between Healthcare Levels

Challenge	Enhancing Communication Between Healthcare Levels
Hospital	MUL – Medical University of Lodz
Background information	At MUL, the transfer of sensitive medical information across primary, secondary, and tertiary levels of care is currently hindered by reliance on paper records. These records are prone to loss or damage, leading to inefficiencies and potential errors in patient care.
Challenge description	MUL is seeking to develop a new, efficient national system for the digital transfer of medical data. This system aims to minimize the loss of information, reduce unnecessary duplication of lab tests, and streamline communications between healthcare professionals.
What They Are Looking For	A coherent data system that allows for the quick and secure transfer of medical records, enhancing communication without compromising patient rights.

Table 12. Addressing the Shortage of Healthcare Providers

Challenge	Addressing the Shortage of Healthcare Providers
Hospital	MUL – Medical University of Lodz
Background information	There is a significant shortage of medical staff in Polish hospitals, with only 3.51 physicians per 1000 patients, below the EU average. This shortage contributes to lengthy waiting times for specialist appointments and places considerable pressure on existing staff.
Challenge description	MUL aims to alleviate the administrative burden on physicians by implementing systems that reduce paperwork and bureaucratic procedures, allowing doctors to dedicate more time to patient care.
What They Are Looking For	Solutions that streamline administrative processes within hospitals, thereby enhancing the efficiency of healthcare delivery and addressing the workforce shortage.

Table 13. Bridging the Gap Between Public and Private Healthcare Sectors

Challenge	Bridging the Gap Between Public and Private Healthcare Sectors
Hospital	MUL – Medical University of Lodz
Background information	The disparity between the public and private healthcare sectors in Poland often leads to inefficiencies and conflict. Private physicians, unrestricted by funding limitations, frequently prescribe unnecessary procedures that burden the public system financially.
Challenge description	MUL seeks to transform the competitive nature between the public and private healthcare sectors into a cooperative framework. The objective is to optimize healthcare procedures to be universally beneficial, leveraging AI technologies.
What They Are Looking For	An AI-based model that facilitates the optimization of healthcare procedures, ensuring that both public and private sectors can work together more harmoniously for the benefit of all patients.

Table 14. Intelligent Laboratory Diagnostics

Challenge	Intelligent Laboratory Diagnostics
Hospital	UMCU – University Medical Center Utrecht
Background information	At UMCU, decisions regarding diagnostic laboratory testing are made collaboratively by healthcare professionals and patients. Unfortunately, not all of these decisions are based on evidence, leading to inefficiencies—either excessive or insufficient testing—which can compromise the sustainability of the healthcare system.
Challenge description	UMCU is dedicated to enhancing the decision-making process in laboratory diagnostics. The goal is to develop an intelligent diagnostics system that integrates seamlessly with the Hospital Information System, supporting medical staff and patients in choosing the appropriate tests based on solid evidence.
What They Are Looking For	A solution that develops and integrates an intelligent system for laboratory diagnostics that optimizes test ordering, reducing unnecessary testing and ensuring essential tests are not overlooked.

Table 15. Collaboration of Data Professionals in Hospital Settings

Challenge	Collaboration of Data Professionals in Hospital Settings
Hospital	UMCU – University Medical Center Utrecht
Background information	The integration of specialized data professionals, such as bioinformaticians and data scientists, into healthcare settings is increasingly crucial. These experts are essential for processing complex data like genomics and deploying AI models to improve clinical care. However, there is a notable gap in their integration within hospital departments due to isolation and the niche nature of their roles.
Challenge description	UMCU aims to foster an environment where data professionals are not only integrated but are also part of a collaborative community within the hospital. This initiative seeks to bridge the gap between technical data handling and everyday clinical operations, enhancing the hospital's overall data-driven decision-making capabilities.
What They Are Looking For	Practical strategies and best practices for embedding data-minded professionals into clinical teams, enabling effective collaboration and knowledge exchange to prepare for a future where data is integral to healthcare.

7 Long term Sustainability

Ensuring the long-term sustainability of the ODIN Innovation Hub is crucial for maintaining its role as a catalyst for smart hospital transformation beyond the project's initial funding period. Sustainability in this context refers to the Hub's ability to remain active, relevant, and financially viable, continuously engaging stakeholders, fostering innovation, and integrating new technological solutions.

This chapter outlines the strategic approach to sustainability, covering the financial, operational, technological, and governance aspects that will allow the ODIN Innovation Hub to remain a leading ecosystem for healthcare innovation in the future.

7.1 Key pillars of sustainability

To ensure the long-term viability of the ODIN Innovation Hub, sustainability efforts will focus on four key pillars:

1. **Financial Sustainability:** Securing funding through multiple channels, including public grants, private investments, membership models, and strategic partnerships.
2. **Operational Sustainability:** Establishing a structured governance framework, ensuring efficient management and continuous engagement with key stakeholders.
3. **Technological Sustainability:** Maintaining and evolving the Hub's digital infrastructure, ensuring continuous access to AI, IoT, and robotic solutions while integrating new innovations.
4. **Community and Stakeholder Engagement:** Keeping the ODIN Community of Interest active by offering value-driven collaboration opportunities, training programs, and networking events.

Each of these pillars is essential to creating a self-sustaining ecosystem that continues to generate impact and drive healthcare innovation beyond the project's lifecycle.

7.2 Community Engagement and Long-Term Value Creation

The ODIN Innovation Hub's sustainability depends on maintaining an engaged and active community. Strategies include:

Expanding the ODIN Community of Interest

- Increasing participation by onboarding more hospitals, research institutions, and healthcare professionals.
- Launching regional hubs across Europe to facilitate localized innovation networks.
- Establishing mentorship programs connecting startups with experienced healthcare providers.

Offering Continuous Training and Education

- Developing certification programs for hospitals implementing ODIN solutions.
- Hosting annual conferences, workshops, and webinars to share best practices.
- Establishing online learning platforms with case studies, interactive training modules, and live Q&A sessions.

Driving Policy Advocacy and Standardization

- Collaborating with European health regulators to define best practices for digital health adoption.
- Providing policy recommendations to facilitate the scaling of AI, IoT, and robotics in hospitals.

By strengthening community ties and knowledge-sharing mechanisms, the ODIN Hub will continue to drive sustainable innovation in healthcare.

7.3 Ensuring long-term sustainability

The long-term sustainability of the ODIN Innovation Hub depends on a multi-faceted approach, incorporating financial resilience, strong governance, continuous technological evolution, and active community engagement. By securing diverse funding sources, optimizing operations, updating digital infrastructure, and fostering collaboration, the ODIN Hub is positioned to thrive beyond its initial funding period.

As hospitals continue to adopt AI, robotics, and IoT-driven solutions, ODIN will serve as a central platform for co-creation, implementation, and scaling, ensuring that healthcare innovation remains demand-driven, impactful, and sustainable.

8 Conclusions

The ODIN Open Innovation approach has demonstrated the value of demand-driven innovation, ensuring that AI, robotics, and IoT solutions developed within the project are aligned with real hospital needs. By actively engaging hospitals, healthcare professionals, and industry partners, ODIN has effectively bridged the gap between technological advancements and their practical implementation in hospital settings.

The ODIN Innovation Hub has emerged as a critical platform for connecting hospitals with technology providers, fostering co-creation, testing, and scaling of solutions. The two-way communication model between hospitals (demand side) and technology providers (supply side) has accelerated solution refinement and deployment, ensuring that innovation remains relevant and effective.

Through interviews, workshops, and Open Calls, ODIN hospitals have successfully identified and prioritized critical healthcare challenges, leading to tailored AI, robotics, and IoT-driven solutions. The Market Scouting process has expanded the range of innovative solutions by attracting startups and SMEs, ensuring a continuous influx of new technologies into the ODIN ecosystem.

The expansion of the ODIN Community of Interest continues to be a driving force in ensuring knowledge-sharing, training, and collaboration. Future developments will focus on enhancing digital collaboration tools, expanding stakeholder participation, and strengthening policy advocacy to facilitate regulatory alignment.

The Open Call mechanism has proven to be an effective strategy for integrating external innovation, bringing high-potential startups and research institutions into the co-creation process with hospitals. Co-creation workshops, such as those in Pisa with Mosaic and OHIO solutions, have provided hospitals with the opportunity to test technologies in real-world settings, generating valuable feedback for refinement and scalability.

The ODIN Open Innovation framework has established a sustainable, collaborative ecosystem that ensures hospitals, innovators, and policymakers work together to drive digital transformation in healthcare. By maintaining a demand-driven approach, ODIN guarantees that new technologies are developed with direct input from hospitals, leading to higher adoption rates, improved patient outcomes, and greater operational efficiency.

Moving forward, ODIN will continue to expand its innovation ecosystem by onboarding more hospitals, startups, and research institutions. It will focus on enhancing digital infrastructure to facilitate real-time collaboration and knowledge-sharing and ensuring financial sustainability through diversified funding models and strategic partnerships.

Through its commitment to co-creation, stakeholder engagement, and sustainable innovation, ODIN is laying the foundation for the next generation of smart, data-driven, and patient-centered hospitals in Europe.