Valmore TECHNOLOGIES

Ελλάδα 2.0
ΕΘΝΙΚΟ ΣΧΕΔΙΟ ΑΝΑΚΑΜΨΗΣ ΚΑΙ ΑΝΘΕΚΤΙΚΟΤΗΤΑΣ

Με τη χρηματοδότηση της Ευρωπαϊκής Ένωσης
NextGenerationEU

Hyfense

Clinical Decision Support

Real-time data intelligence for monitoring
Antimicrobial Resistance and Hospital-Acquired Infections

/ Trusted Software Engineering Partners /

Who we are

Valmore Technologies is a boutique software development company specializing in integrated software systems. We specialize in transforming complex digital requirements into functional and scalable software solutions for the healthcare, scientific, and food industries. Our software engineers work closely with domain experts to jointly develop digital tools that make a significant impact.

What sets us apart is our relentless commitment to delivery.

With a diverse, agile team of over 30 highly skilled professionals, Valmore applies modern and well-established technologies to provide solutions that ensure fitness for purpose, technical excellence and business continuity.

Every time.

What we do

Software Development Solutions
Web, mobile & cloud platforms
Systems Integration

Data Engineering, ML & AI
Data Discovery
NLP, Insights, Predictive Analytics
Big Data & Scalable Solutions

Embedded Programming
Device software, firmware & IoT
Complete, integrated systems,
with automations

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Boutique by design. Enterprise-grade by mindset.

With a short history (since 2020) but rich experience (through 25+ years of experience in the design and development of complex IT systems), Valmore Technologies is a team of technology professionals with a clear focus on the successful implementation and delivery of the projects it undertakes.

Nassos Katsaounis
Co-Founder & CEO

Dimitri Ampelakiotis
Co-Founder & CTO

A brilliant team

The Hyfense team combines leading medical expertise with dynamic, modern software engineering. Led by infectious disease specialist Dr. Flora Kontopidou, a long-standing former member of the Hellenic Center for Disease Control and Prevention (EODY) and representative of Greece at the ECDC and WHO, and a team of young, talented, and highly skilled engineers, Hyfense combines scientific authority and technical excellence for the surveillance of hospital infections with the support of Artificial Intelligence.

Dr. Flora Kontopidou
Pathologist – Infectious Diseases Specialist

Konstantinos Petrakis
Lead Full Stack Software Engineer

Aris Lymperopoulos
Data, AI & Back End Software Engineer

Kyriaki Pantsiopoulou
Back End Software Engineer

George Bras
Full Stack Software Engineer

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A modern platform for a persistent challenge

Microbial resistance remains a serious a threat to public health

Hyfense is a clinical decision support platform designed to monitor healthcare-associated infections (HAIs) and antimicrobial resistance (AMR).

By leveraging real-time data and artificial intelligence, it contributes to patient safety and enhances hospital efficiency.

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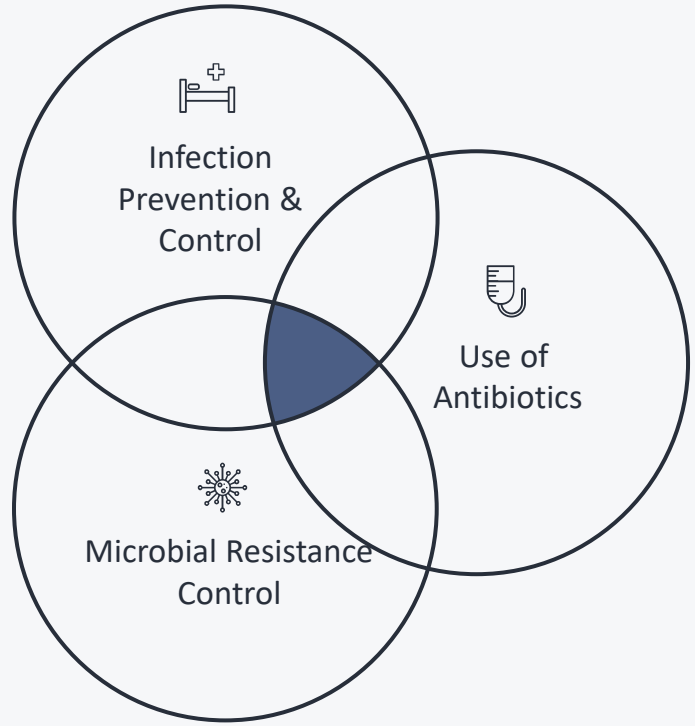
Hyfense objectives

And how they are achieved

Monitoring and Control of Healthcare-Associated Infections (HAIs) and Antimicrobial Resistance (AMR)

Support for the work of the relevant bodies – HAI Commission & Antibiotics Surveillance and Stewardship Team. Saving time and resources – providing tools.

1. **Data collection and processing** using an automated and reliable methodology
2. **Real-time monitoring** of the hospital's epidemiological profile
3. **Early detection** and response to critical incidents
4. **Easy access** multi-user system for both data entry and information sharing and awareness-raising
5. **Education** and interaction via the Hyfense platform



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Hyfense
Clinical Decision Support

Functionality

Surveillance in the Spotlight

The system is installed with Outcome and Process Indicators already in place, based on the **National Surveillance System (EODY)** and **International Standards**.

1. **Data collection** – Depending on the indicator's requirements, this can be done either through web forms or mobile apps (e.g., hand hygiene), or by integrating with hospital systems (e.g., antibiotic use) to eliminate the need for additional data entry**.**
2. **Reporting of results** with ability to display in data tables and charts such as bar charts, pie charts, etc.
3. **Statistical analysis** and visualization of trends over time
4. **Analysis of results** for all reports and result visualizations, which can be filtered by the system user:
    a) by source level, e.g., clinical department, category of healthcare professionals (where applicable), as well as across the entire hospital
    b) by time period, e.g., semester, quarter, or any other period

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Users and Roles

1

HAI Commission
Antibiotics Stewardship Team

Data Entry
Data Evaluation
Report Management

2

Microbiology Laboratory
Pharmacy
IT Department

Specialized Data Importing

3

Healthcare Professionals

Limited Data Import

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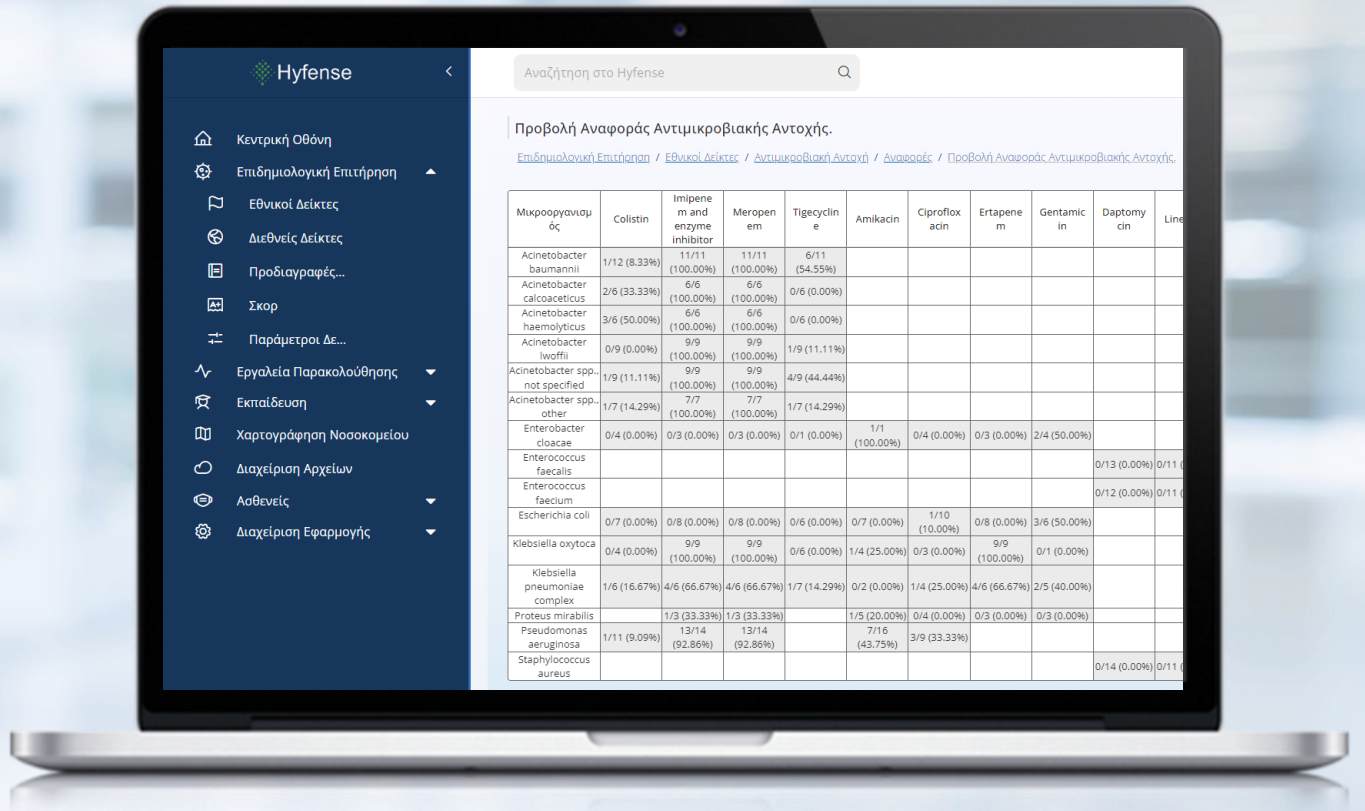
Functionality (i)

Outcome Indicators

1. **Infections**
    a) Impact of Healthcare-Associated Infections (HA-BSI, CLABSI, CRBSI,CAUTI, VAE,SSI and other)
    b) Point Prevalence of Hospital-Acquired Infections (PPS)
2. Incidence of patients with **multidrug-resistant pathogens** (infection/colonization)
3. Prevalence of **Antimicrobial Resistance** (national indicator, PPS, international standards)
4. **Use of antibiotics** and antifungal medications (DDDs, DOTs, LOTs)
5. **Use of an antiseptic solution** for Hand Hygiene
6. **Diseases subject to mandatory reporting** to Hellenic National Public Health Organization/EODY (total number of cases per year and disease)



Μικροοργανισμός	Colistin	Imipenem and enzyme inhibitor	Meropenem	Tigecycline	Amikacin	Ciprofloxacin	Ertapenem	Gentamicin	Daptomycin	Line
Acinetobacter baumannii	1/12 (8.33%)	11/11 (100.00%)	11/11 (100.00%)	6/11 (54.55%)						
Acinetobacter calcoaceticus	2/6 (33.33%)	6/6 (100.00%)	6/6 (100.00%)	0/6 (0.00%)						
Acinetobacter haemolyticus	3/6 (50.00%)	6/6 (100.00%)	6/6 (100.00%)	0/6 (0.00%)						
Acinetobacter lwoffii	0/9 (0.00%)	9/9 (100.00%)	9/9 (100.00%)	1/9 (11.11%)						
Acinetobacter spp., not specified	1/9 (11.11%)	9/9 (100.00%)	9/9 (100.00%)	4/9 (44.44%)						
Acinetobacter spp., other	1/7 (14.29%)	7/7 (100.00%)	7/7 (100.00%)	1/7 (14.29%)						
Enterobacter cloacae	0/4 (0.00%)	0/3 (0.00%)	0/3 (0.00%)	0/1 (0.00%)	1/1 (100.00%)	0/4 (0.00%)	0/3 (0.00%)	2/4 (50.00%)		
Enterococcus faecalis									0/13 (0.00%)	0/11
Enterococcus faecium									0/12 (0.00%)	0/11
Escherichia coli	0/7 (0.00%)	0/8 (0.00%)	0/8 (0.00%)	0/6 (0.00%)	0/7 (0.00%)	1/10 (10.00%)	0/8 (0.00%)	3/6 (50.00%)		
Klebsiella oxytoca	0/4 (0.00%)	9/9 (100.00%)	9/9 (100.00%)	0/6 (0.00%)	1/4 (25.00%)	0/3 (0.00%)	9/9 (100.00%)	0/1 (0.00%)		
Klebsiella pneumoniae complex	1/6 (16.67%)	4/6 (66.67%)	4/6 (66.67%)	1/7 (14.29%)	0/2 (0.00%)	1/4 (25.00%)	4/6 (66.67%)	2/5 (40.00%)		
Proteus mirabilis		1/3 (33.33%)	1/3 (33.33%)		1/5 (20.00%)	0/4 (0.00%)	0/3 (0.00%)	0/3 (0.00%)		
Pseudomonas aeruginosa	1/11 (9.09%)	13/14 (92.86%)	13/14 (92.86%)		7/16 (43.75%)	3/9 (33.33%)				
Staphylococcus aureus									0/14 (0.00%)	0/11

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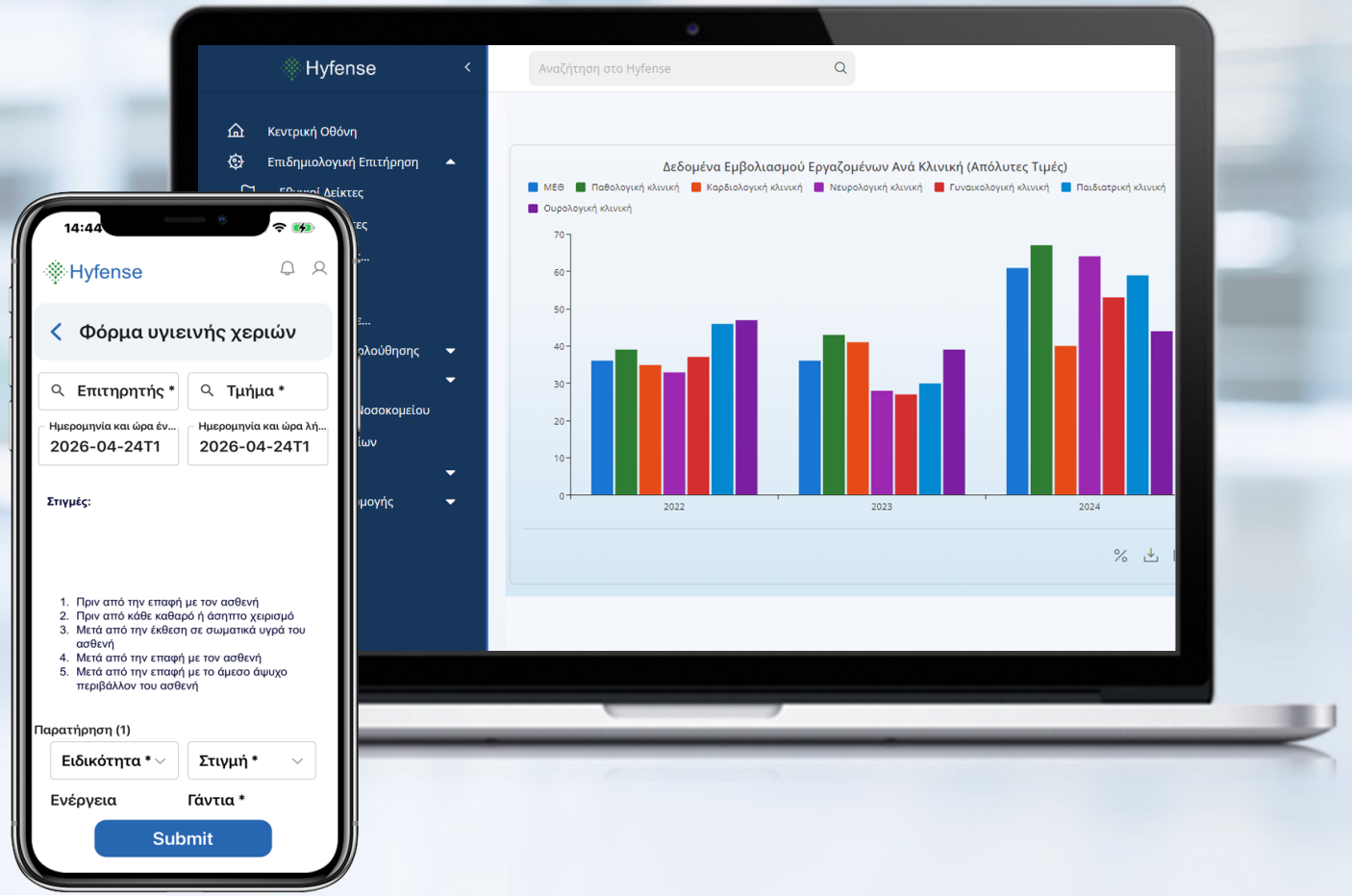
Functionality (ii)

Process Indicators

1. **Hand Hygiene** Compliance
2. Compliance with infection prevention guidelines for **invasive procedures** – audit tools (CRBSI, CAUTI, VAE, SSI)
3. **Staff vaccination** against seasonal flu
4. **Audit tool** for sanitation
5. Compliance with **contact precautions**



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Functionality (iii)

Detection

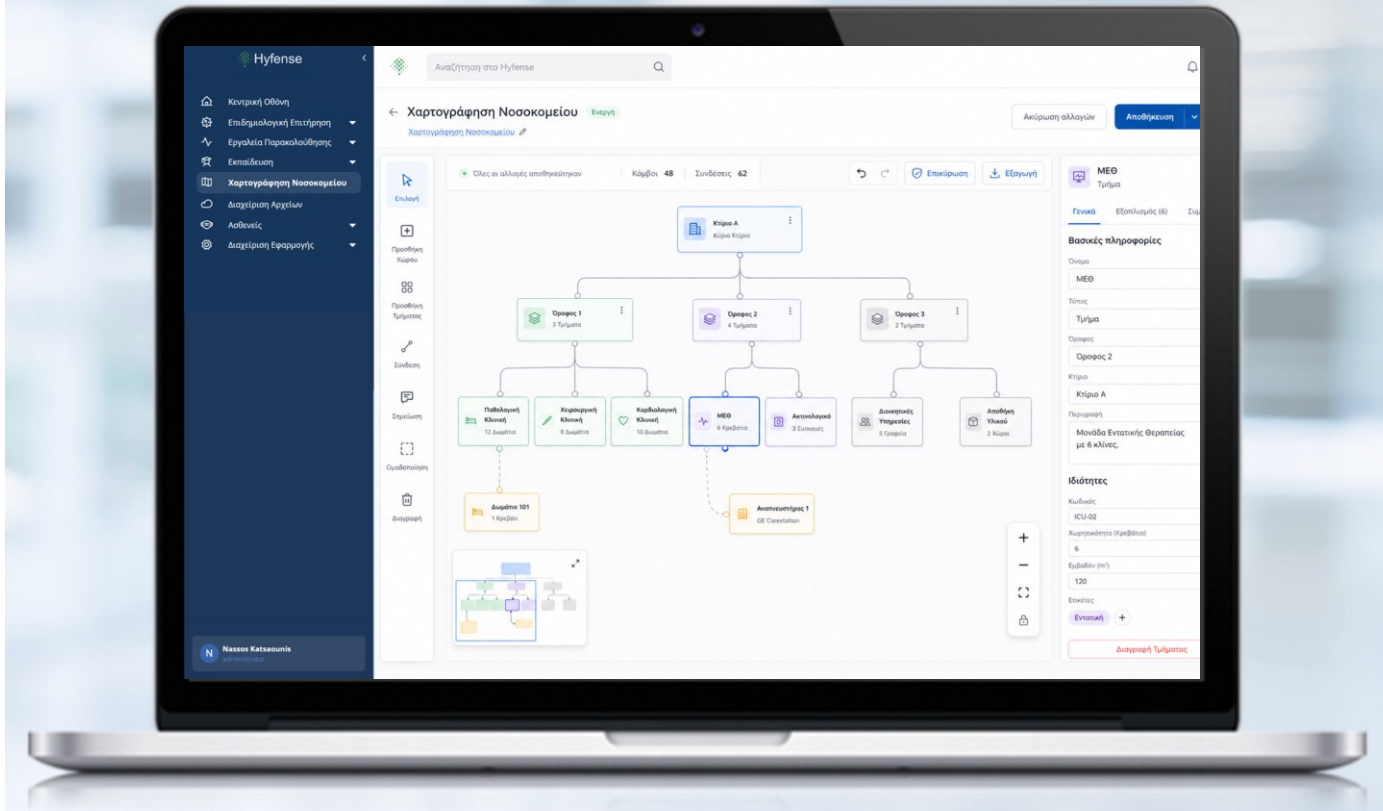
Early Warning and Notification System for critical incidents via email, SMS, or push notifications, providing updates on:

- **Pathogens or microorganisms** (infection or colonization of patients)
- **Indicators Fluctuation**
- **Case Clusters -** Infections and colonization by critical pathogens with epidemiological links

Mapping

Hospital mapping in terms of infection prevention, displaying recorded cases on an interactive map

- **Infections** (HAI type)
- **Pathogens** (infection/colonization)
- **Antibiotics - Antifungal medications**
- **Interference-causing devices** (catheters, surgical procedures)



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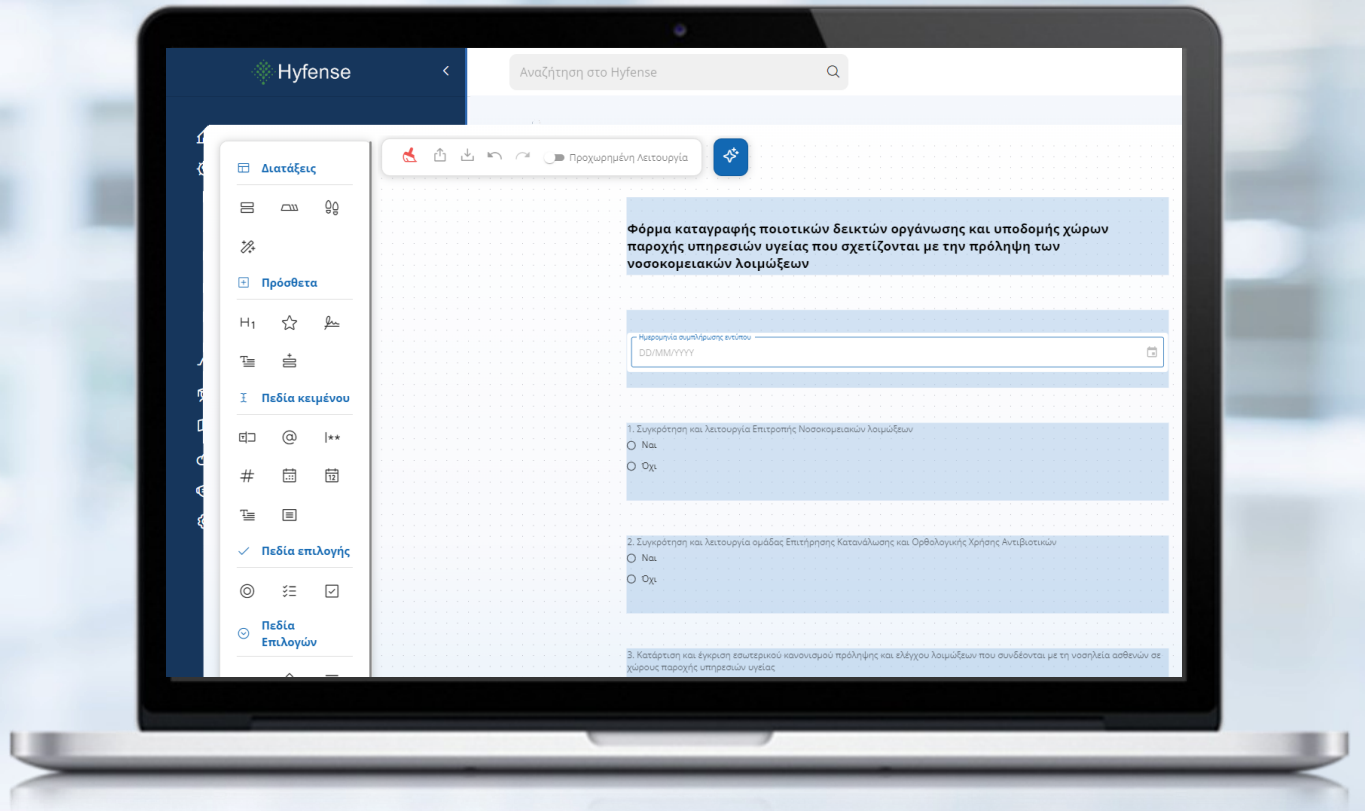
Functionality (iv)

Configuration - Scalability

A scalable platform that allows users to create and manage functional "modules" without the need for a developer:

1. **Data Structures** – Dynamic Fields, Relationships, and Rules Definition
2. **Data entry** using dynamic forms that can be easily created and edited via drag-and-drop or using natural language processing (NLP). The forms are immediately available on mobile devices and tablets, facilitating real-time data entry in the field.
3. **Data analysis** with reports in tabular format, featuring advanced filtering, grouping, and sorting capabilities.
4. **Dynamic dashboards** that combine charts, metrics, and widgets
5. **Notification system** with the ability to define rules based on events or conditions.
6. **Multilingual environment**, without limit on the number of languages



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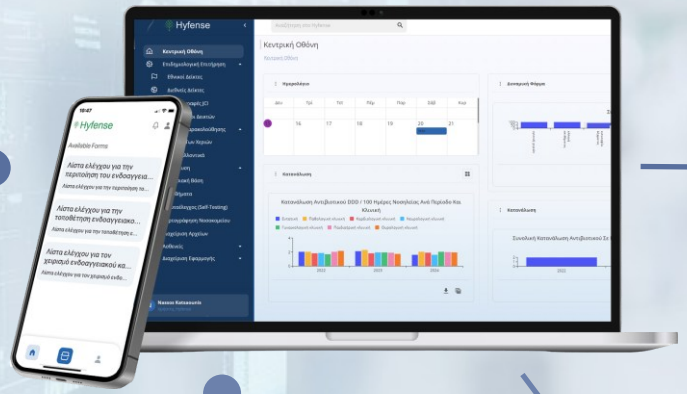
Integration

Hyfense connects to the hospital's systems (via HL7, API, or file exchange), receives updates, and utilizes the data.

Hospital Information System

Lab Information System

Pharmacy Information System



Detection - Mapping

Surveillance

Alerts

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Hyfense & AI

4 ways AI supports Hyfense in
infection prevention and clinical decisions

Epidemiological trends and risk forecasting

Data analysis using machine learning algorithms to predict infection outbreaks or increases in resistance, allowing time for preventive action.

Real-time pattern and cause identification

Identifying correlations between events and practices, revealing hidden patterns that lead to infections.

Intelligent data and natural language processing (NLP)

Understanding users' questions and comments in natural language and instantly retrieving answers from databases, thereby accelerating decision-making.

Automated reports and notifications

Personalized reports and smart alerts for physicians, infection control committees, and administration, reducing workload and human error.

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Licensing

Annual cost of license, support, and new releases **after the trial period**.

Beds from	Beds to	**Stewardship ["S"]** Notifications, reporting, mapping, compliance monitoring, no-code customization	**Intelligence ["AI"]** All features in Stewardship plus AI functionality
0	100	€12.500,00	€15.000,00
101	150	€14.000,00	€16.800,00
151	200	€16.000,00	€19.200,00
201	250	€18.000,00	€21.600,00
251	300	€20.000,00	€24.000,00
301	350	€22.000,00	€27.500,00
351	400	€24.000,00	€30.000,00
401	500	€27.000,00	€33.750,00
501	600	€30.000,00	€39.000,00
601	700	€32.000,00	€41.600,00
701	900	€36.000,00	€48.600,00
900+		€45.000,00	€60.750,00

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Value Proposition

Hyfense offers a comprehensive and practical tool for the surveillance and management of hospital-acquired infections and antimicrobial resistance.

At the operational level, the system provides a **timely and reliable overview of the hospital's epidemiological situation**, enhancing the ability to respond rapidly to new cases and supporting evidence-based decision-making by the relevant scientific and administrative staff.

At the same time, it significantly reduces the administrative burden by **automating data collection, processing, and reporting**, ensuring consistency and accuracy in both internal processes and submissions to relevant authorities.

From a technical standpoint, Hyfense's architecture ensures **flexibility, scalability, and interoperability**, allowing it to be adapted to the specific needs of each unit and seamlessly integrated into the existing IT environment, without dependence on specific technological choices.

Finally, from a financial perspective, by helping to reduce hospital-acquired infections, Hyfense can significantly help lower costs. For example, assuming an average cost of €10,000 per infection, in a 350-bed unit with an average length of stay of 7 days, if the infection rate is reduced from 5% to 4% within a year, the cost savings could reach nearly one million euros.

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