SALAM-MED
sustainable approaches to land and water management in mediterranean drylands

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Sustainable Approaches to Land and water Management in Mediterranean Drylands

Deliverable D6.4

Digital Platform

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PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

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Disclaimer

Outline

This document presents an initial version of the data management plan (DMP) of the SALAM-MED project, the deliverable number 1.2.1 of the management workpackage (WP1) due 3 months after the start of the project. It is a living document which will be updated as the implementation of the project progresses.

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Executive Summary

The implementation of the SALAM-MED project involves the development of a Digital Platform (DP) aimed at actively engaging end users, practitioners, business owners, and farmers in a social learning process within the Living Lab (LL), a key component of the project. The DP serves several out-scaling objectives: 1)Information Dissemination: The DP establishes a systematic approach to categorize SALAM-MED's practical solutions, considering factors such as the technologies employed, objectives achieved, socio-economic context, critical challenges faced, and potential future developments; 2) User Participation: Through the web interface, each user can analyze case studies and offer insights and recommendations based on their field experiences. By providing information about a specific context, the information system generates a combination of technological, agronomic, and socio-economic approaches to suggest the most suitable solutions. 3) Access to Case Studies: The DP provides access to case study cards, offering background information. This access aims to maximize the adoption of innovative SALAM-MED technologies among end users and facilitate the creation of commercial technology-based SMEs. The SALAM-MED project, with the development and utilization of the DP, underscores its commitment to fostering knowledge exchange, promoting innovation, and facilitating the adoption of advanced technologies within the agricultural and business communities. Through active engagement and information sharing, the project aims to drive the growth of technology SMEs and enhance the socio-economic landscape of the region.

The work to create the platform was organized into the following distinct phases: a) definition of the architecture and functional requirements; b) creation of mockups and their iteration; c) data collection for living labs; d) data collection for the technologies section; e) implementation and deployment into a dedicated server.

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List of Beneficiaries

Desertification Research Center, University of Sassari	NRD	Italy
Università degli studi di Firenze	UNIFI	Italy
CNR, Inst. for Sustainable Plant Protection	CNR-IPSP	Italy
Centre Int. Hautes Etudes Agronomiques Méditerranéennes	CIHEAM	France
Desert Research Center	DRC	Egypt
Institut des Régions Arides	IRA	Tunisia
Academy of Athens	AoA	Greece
Center for Agro-food Economics and Development	CREDA	Spain
Cadi Ayyad University - Faculté des Sciences Semlalia	UCA	Morocco
Universitat Politècnica de València	UPV	Spain
Médenine Agro Tech	MAT	Tunisia
Abinsula	ABIES	Spain
FAO Regional Office for the Near East and North Africa	RNE	Egypt
Primo Principio	2P	Italy
WeWorld-GVC	WW-GVC	Palestine
DesertNet International	DNI	France

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1. Introduction

The development of a Digital Platform (DP) is a significant achievement within the SALAM-MED project, representing the culmination of Task 6.4 "Exploitation and Scaling Out." This platform is designed to actively involve end users, practitioners, business owners, and farmers in a dynamic social learning process within the framework of the Living Lab (LL), a pivotal element of the project.

The DP serves multiple key objectives aimed at expanding its impact:

Dissemination of Information: The DP employs a systematic framework to categorize the practical solutions offered by SALAM-MED, considering various factors such as the technologies utilized, the objectives accomplished, the socio-economic context, critical challenges encountered, and prospects for future development.

Engagement of Users: Through an accessible web interface, each user gains the ability to scrutinize case studies and contribute insights and recommendations based on their first-hand field experiences. By offering specific context details, the information system generates a blend of technological, agronomic, and socio-economic approaches to propose the most appropriate solutions.

Access to Comprehensive Case Studies: The DP offers access to case study cards, providing essential background information. This access is strategically designed to enhance the adoption of innovative SALAM-MED technologies among end users and to facilitate the establishment of technology-oriented SMEs.

The creation of this digital platform, a product of Task 6.4 "Exploitation and Scaling Out," involved a well-organized process, including:

a) The definition of architecture and functional requirements.

b) The development and iterative refinement of mockups.

c) Data collection for the living labs.

d) Data compilation for the technologies section.

e) Implementation of the platform and deployment on a dedicated server.

The introduction and utilization of this digital platform exemplify SALAM-MED's unwavering dedication to fostering knowledge exchange, propelling innovation, and facilitating the adoption of advanced technologies within the agricultural and business communities. Through active engagement and the seamless sharing of information, the project is steadfast in its mission to drive the growth of technology-based SMEs and uplift the socio-economic landscape of the region.

2. Definition of architecture and requirements

The architecture and requirements definition of the Digital Platform (DP) within the SALAM-MED project are instrumental in achieving its three primary objectives:

Objective 1: Web-Based Adoption Evaluation Tool The first objective centers on the development of a web-based tool equipped with indicators to evaluate the solutions analyzed in the project. The architecture and content requirements should consider:

- **User-Centric Design:** The platform should feature a user-friendly interface to ensure accessibility and engagement. User needs and preferences should be at the forefront of design considerations.
- **Data Integration:** The architecture must seamlessly integrate data from diverse sources, encompassing technological and socio-economic data. This necessitates a robust database structure capable of handling varying data types.
- **Scalability:** The platform's architecture should be designed to accommodate increasing data volumes, users, and contributions over time, ensuring it remains effective and efficient throughout the project's lifecycle.
- **Data Security:** Given the sensitive nature of the data involved, stringent security measures are paramount to safeguard user information, preserve data integrity, and build user trust in the platform.

Objective 2: Business Model Analyses The second objective involves providing comprehensive business model analyses, incorporating technological, agronomic, and socio-economic dimensions. The architecture's content and requirements should align with this objective by:

- **Structured Analysis Framework:** The platform should offer a structured framework for business model analysis, allowing users to navigate data related to technology, agronomy, and socio-economics for comprehensive assessments.
- **Decision Support Tools:** Decision support tools should be integrated to assist users in making informed choices about solution adoption. These tools may include financial assessments, risk evaluations, and potential economic impact analyses.
- **Data Integration:** The platform should seamlessly integrate technological, agronomic, and socio-economic data streams to provide a holistic view of each business model's viability. This integration enables cross-referencing and comparisons.
- **Collaborative Features:** The architecture should include collaborative features that encourage stakeholders to work together in refining business models. It should enable multiple users to collaborate on the same model and facilitate seamless knowledge sharing.

Objective 3: Information Dissemination The third objective revolves around the communication and dissemination of information related to practical solutions from various viewpoints, including the technologies used, objectives achieved, socio-economic context, main criticalities faced by the solution, and potential future development. The platform should provide a structured means for conveying these insights, enhancing knowledge exchange, and promoting innovation within the agricultural and business communities.

In conclusion, the architecture and requirements definition of the SALAM-MED project's DP are pivotal components that must align with the platform's core objectives. An efficient, user-centric

design, coupled with robust data integration, scalability, and security measures, is essential for the web-based adoption evaluation tool. Additionally, the platform's content and structure should empower users with powerful business model analyses, decision support tools, collaborative capabilities, and effective information dissemination, recognizing the multifaceted nature of technological, agronomic, and socio-economic factors. By doing so, the platform can effectively advance the project's mission to foster knowledge exchange, drive innovation, and promote the adoption of advanced agricultural solutions in the region.

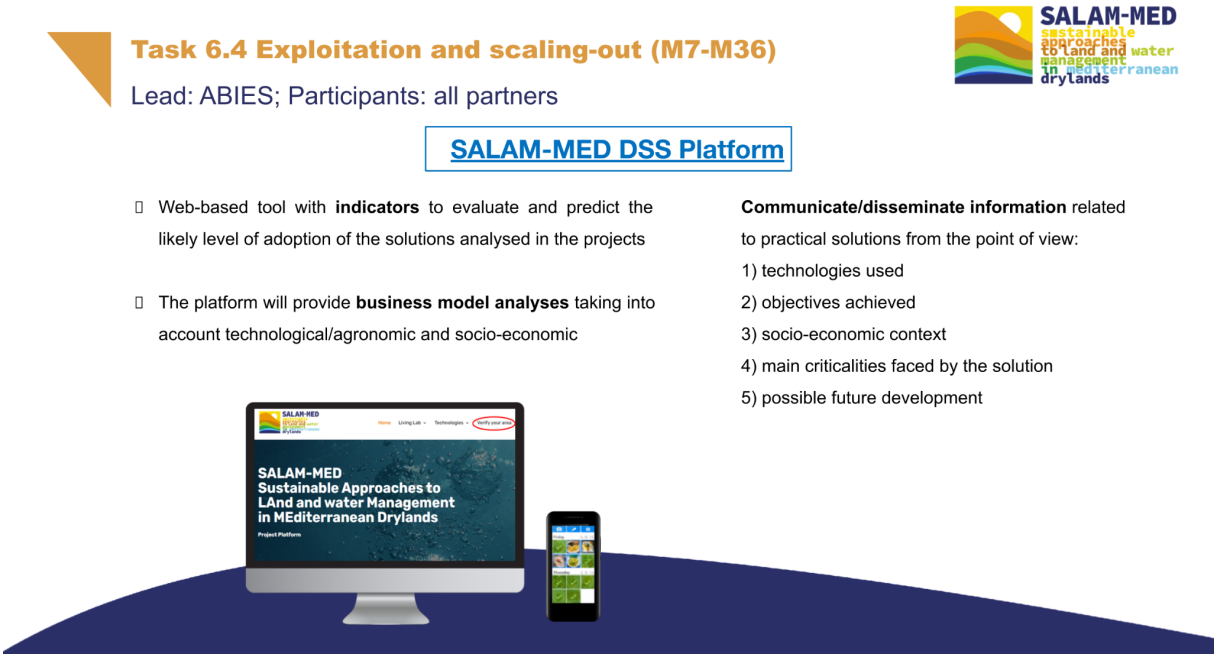

Figure 1: Digital Platform objectives

3. Mockups definition and iteration

The process of mockup definition and iteration is a critical phase in the development of a digital platform, ensuring that the final product aligns with project proposals, meets requirements, and integrates valuable input from project partners. This process involves the creation and refinement of mockups, which are visual representations of the platform's interface and functionality.

1) Project Proposals Requirements: The journey begins from the project proposals and the requirements that have been outlined. These requirements have served as the foundational guidelines for the digital platform's development. They encompass the platform's objectives, target audience, features, and functionality. This initial step sets the stage for what the platform should achieve and how it should function.

2) Input from Partners: Collaboration is key in the development of a digital platform, especially in a project involving multiple partners. Input from these partners is invaluable as it brings diverse perspectives, expertise, and user feedback to the table. Partners may provide insights on user needs, industry best practices, and any specific features or functionalities that should be incorporated into the platform.

3) Mockup Iteration (Version 0, Version 1, and Final Version): Mockups serve as visual blueprints, helping to translate project requirements and partner input into a tangible design. The mockup iteration process typically involves the following stages:

- **Version 0 (Initial Mockup):** The initial mockup, often referred to as "Version 0," is a basic representation of the platform's layout and features. It provides an early visualization of the platform's structure, including elements such as navigation menus, content placement, and basic functionality. It is intentionally kept simple to gather initial feedback and identify any major design flaws or missing elements.
- **Version 1 (Iterative Improvement):** Based on the feedback received from project partners and stakeholders, the mockup undergoes iterative improvements in "Version 1." This stage focuses on refining the platform's design and functionality, taking into account specific suggestions, usability concerns, and design aesthetics. User experience (UX) design principles are often applied to ensure an intuitive and engaging interface.
- **Final Version:** The "Final Version" of the mockup is the refined and polished representation of the digital platform. It incorporates all the necessary design elements, features, and functionality to meet the project's objectives and partner requirements. This version aligns closely with the project's vision and the feedback received, making it a comprehensive visual guide for the platform's development.

Throughout the mockup iteration process, ongoing communication and collaboration with partners and stakeholders are essential. Feedback is continuously gathered and incorporated into each new version. This iterative approach allows for flexibility and adaptability, ensuring that the digital platform evolves to meet the project's objectives effectively.

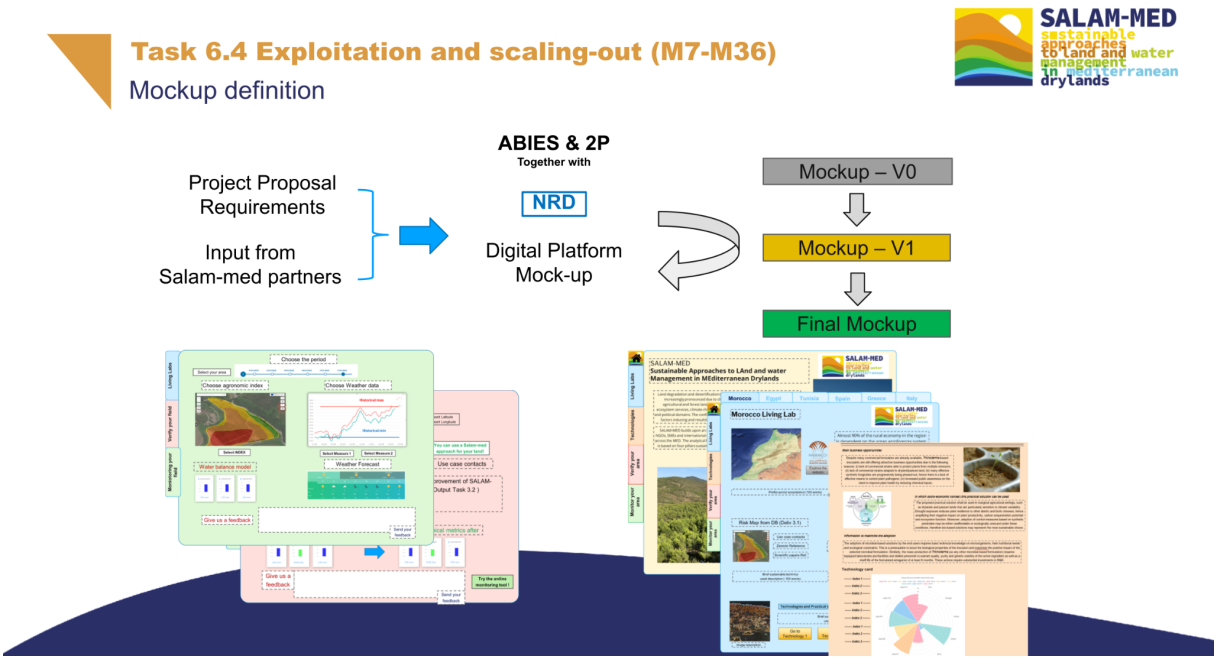

Figure 2: Mockups iteration

4. Data collection from Living Labs

The integration of historical weather data from the partner UNIFI's database has represented a step in the development of the digital platform, offering valuable insights and functionalities for various sections of the Living Lab. To ensure the seamless utilization of this data, a well-defined strategy for data standardization was adopted, enabling dynamic and interactive access for Living Lab sections.

Integration of Historical Weather Data: The integration process began with the extraction and integration of historical weather data from the database of the partner UNIFI. This data serves as a valuable resource for various aspects of the project, including agricultural planning, risk assessment, and predictive modeling. UNIFI's database was a significant asset in enriching the platform's data repository.

Data Standardization Strategy: Standardizing historical weather data is critical for consistent and reliable utilization across the Living Lab sections.

Dynamic and Interactive Access: The integrated historical weather data is made available to Living Lab sections in a dynamic and interactive manner. This approach ensures that users can access, analyze, and interact with the data seamlessly:

- **Browsing Capabilities:** Users can easily browse through historical weather data, accessing the information relevant to their specific needs. This dynamic browsing capability provides flexibility in exploring historical weather patterns.
- **Interactivity:** Interactive features enable users to manipulate and visualize the data, allowing for custom analyses, comparisons, and insights. This interactivity empowers users to derive valuable conclusions from the data.
- **User-Friendly Interface:** An intuitive and user-friendly interface was designed to make accessing and interacting with historical weather data a user-centric experience. The interface is designed to accommodate users with varying levels of expertise.

The integration and standardization of historical weather data from UNIFI's database represent a significant enhancement of the platform's capabilities. This data-rich resource serves as a foundation for informed decision-making, risk assessment, and predictive modeling across different Living Lab sections. By adopting a standardized approach and providing dynamic and interactive access, the platform ensures that users can harness the full potential of historical weather data, contributing to the success of the project and fostering innovation within the agricultural and business communities.

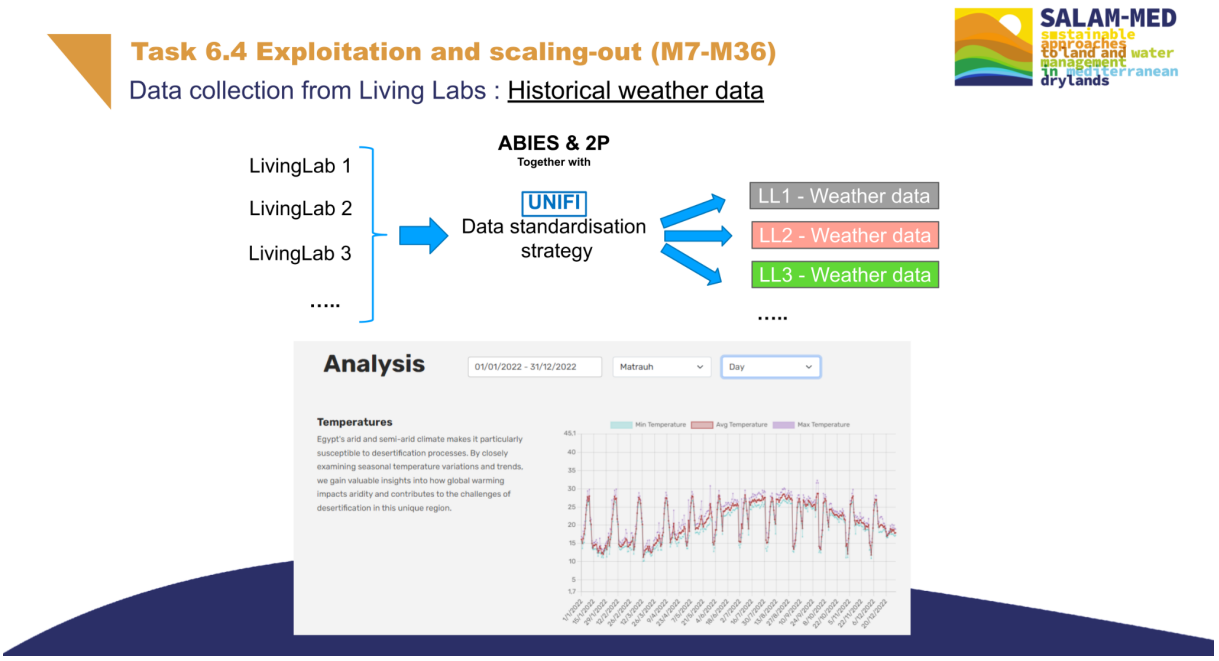

Figure 3: Historical weather data collection

5. Data collection from technologies and practical solutions

Describing and evaluating the technologies and practical solutions tested during the project is a foundamental aspect of understanding the project's impact and facilitating knowledge exchange. To achieve this, two distinct questionnaires were structured, each catering to specific aspects of the project's evaluation. The questionnaires and indexes have been elaborated starting from the deep interaction with NRD, CREDA and CNR.

Questionnaire 1: Scientific and Technological Perspective with Socio-economic and Ecological Context: This questionnaire delves into the scientific and technological facets of the solutions tested during the project. It encompasses key details about the socio-economic contexts in which these solutions were applied.

- **Scientific and Technological Assessment:** The questionnaire assesses the scientific and technological aspects of the tested solutions. It evaluates the effectiveness of the technologies, their precision, and their ability to address specific challenges. This section provides a comprehensive overview of the solutions' performance from a scientific standpoint.
- **Socio-economic Context:** Understanding the socio-economic context in which the solutions are deployed is essential. The questionnaire explores how the solutions impact local communities, businesses, and the broader economic landscape. It considers aspects such as cost-effectiveness, resource allocation, and economic sustainability.

Questionnaire 2: Technology Cards with a Focus on Business Opportunities and Impact Evaluation: This questionnaire shifts the focus towards the business and practical dimensions of the tested technologies. It provides a structured framework to assess the potential for business opportunities and the economic, social, and environmental impact of the solutions.

- **Business Opportunities:** The questionnaire explores the commercial potential of the technologies. It examines their scalability, market demand, and profitability. It also considers factors such as competition, market readiness, and the feasibility of creating technology-based SMEs.
- **Impact Evaluation:** This section is dedicated to assessing the broader impact of the solutions. It covers economic impact, considering factors like job creation, revenue generation, and cost savings. Social impact is also considered, including improvements in living standards and community well-being. Additionally, the questionnaire addresses the ecological impact, including sustainability and the reduction of negative environmental effects.
- **Indexes for Evaluation:** The questionnaire incorporates specific indexes and metrics to quantify the economic, social, and environmental impact of the technologies. These indexes provide a standardized way to measure and compare the effectiveness of different solutions.

By structuring these two questionnaires, the project gains a comprehensive understanding of the technologies and practical solutions it has tested. It allows for a multi-faceted assessment, encompassing scientific, technological, socio-economic, and ecological aspects. Additionally, the focus on business opportunities and impact evaluation ensures that the project is well-equipped to gauge the practical viability and potential of the solutions. This structured approach facilitates the dissemination of knowledge and insights, contributing to the project's overarching goals of fostering innovation and enhancing the socio-economic landscape of the region.

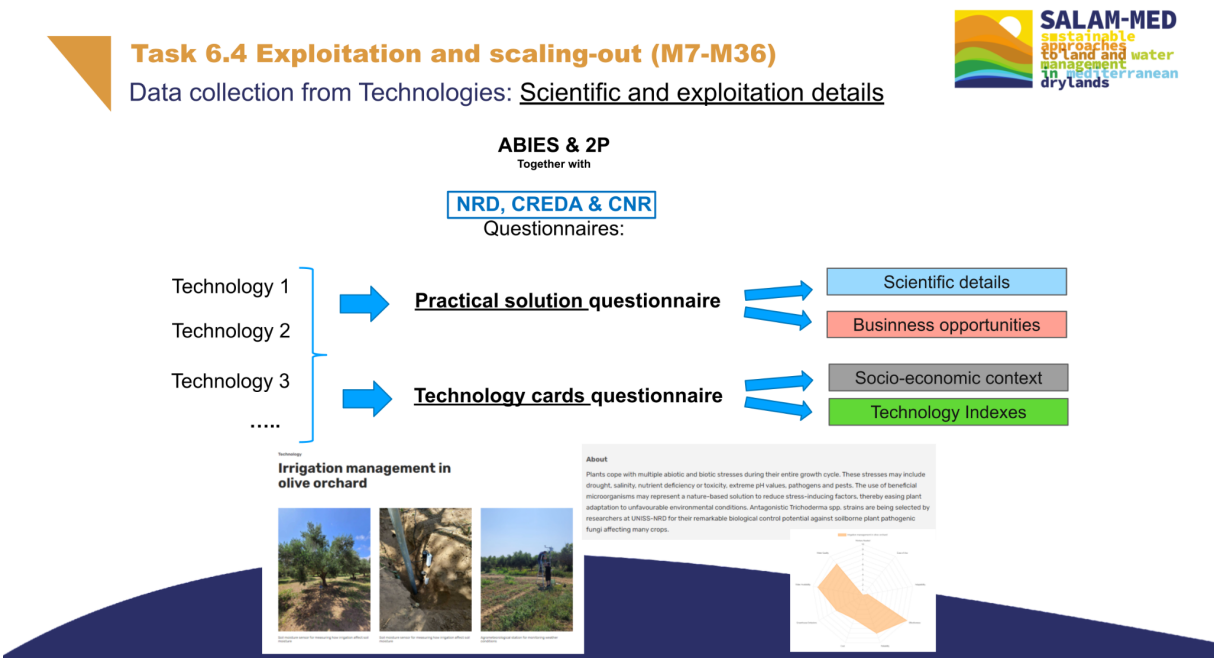

Figure 4: Data collection about technologies and practical solutions

6. Implementation and deployment into a dedicated server

The successful implementation and deployment of the digital platform on a dedicated server marks a significant milestone in the SALAM-MED project. This critical step ensures that the platform is accessible to users, stakeholders, and partners, promoting knowledge exchange, innovation, and the adoption of advanced technologies. The platform's URL, https://platform.salam-med.org/, serves as the gateway to this valuable resource.

Implementation and Deployment: The implementation and deployment process involved several key stages to ensure the platform's functionality, accessibility, and security:

1. **Server Selection:** A dedicated server was carefully selected to host the platform, taking into account factors such as performance, scalability, and data security. This server serves as the backbone of the platform's infrastructure.
2. **Platform Configuration:** The digital platform was configured to meet the project's specific requirements and objectives. This involved the installation of necessary software, the setup of databases, and the implementation of security measures.
3. **Data Migration:** Historical weather data and other project-related data were migrated to the dedicated server. This step ensured that all relevant information was readily available on the platform.
4. **Testing and Quality Assurance:** Rigorous testing and quality assurance procedures were conducted to identify and rectify any issues, bugs, or performance bottlenecks. User experience and platform functionality were thoroughly evaluated during this phase.
5. **Security Measures:** Robust security measures were implemented to safeguard user data, protect against cyber threats, and ensure data integrity. These security protocols are crucial for maintaining user trust and platform reliability.

Platform Accessibility: The platform's URL, https://platform.salam-med.org/, is the designated web address for accessing the digital platform. This URL ensures that the platform is easily accessible to users, stakeholders, and anyone interested in leveraging its features and resources. Users can access the platform from any device with an internet connection, making it a versatile and user-centric resource.

Benefits of Implementation and Deployment: The successful implementation and deployment of the digital platform bring several benefits to the SALAM-MED project and its stakeholders:

- **Knowledge Exchange:** The platform serves as a hub for knowledge exchange, allowing users to access historical weather data, agricultural insights, and business opportunities. It fosters collaboration and innovation within the agricultural and business communities.
- **Innovation Promotion:** By providing a digital space for testing and evaluating solutions, the platform promotes innovation. It empowers users to explore new technologies, business models, and practices.
- **Socio-economic Impact:** The platform's insights and resources have the potential to enhance the socio-economic landscape of the region. By facilitating informed decision-making and the adoption of advanced agricultural solutions, it can drive positive economic and social change.

Conclusion

The SALAM-MED project's journey to develop and deploy the digital platform, accessible at https://platform.salam-med.org/, embodies a commitment to innovation, knowledge exchange, and regional socio-economic progress. This endeavor began with the integration of historical weather data, followed by a meticulous data standardization strategy, dynamic and interactive access for Living Lab sections, and structured questionnaires for assessing technologies and practical solutions.

The platform, underpinned by a user-centric approach, serves three fundamental objectives: evaluating solution adoption, analyzing business models, and disseminating information about practical solutions. It has not only advanced scientific, technological, and socio-economic understanding but also provided a gateway for business opportunities and impact evaluation. The platform's deployment on a dedicated server represents a culmination of these efforts, ensuring accessibility, security, and a versatile resource for stakeholders.

In conclusion, the SALAM-MED project's digital platform is a testament to the power of collaboration, innovation, and information sharing. It equips users with the tools to navigate a complex agricultural landscape, fostering knowledge exchange and technological adoption. With the platform's implementation and deployment, the project is well-positioned to achieve its overarching goals of enhancing the region's socio-economic well-being and driving innovation in the agricultural sector.