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WP3 - Value Chain Analysis

Allon_I3 Project

Alentejo, Portugal

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Prepared by: ADRAL - Alentejo Regional Development Agency

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Value Chain Analysis

Target region/s: Alentejo, Portugal

Focus area/s: ICT and Digitalization + Energy, Environment, Sustainable Development, Agriculture and Tourism

Develop the analysis in accordance with the guidelines and key points provided.

Value Chain Analysis: ICT and Digitalization + Energy, Environment, and Sustainable Development

Section	Information	Examples/Guidance
1. Region Overview		
Region	Alentejo, Portugal	
Sector Focus	ICT and Digitalization + Energy, Environment, Sustainable Development, Agriculture and Tourism	Example: Renewable energy, energy efficiency, circular economy, environmental monitoring systems.
Current Stage of Development	In development	Example: Emerging, Developing, or Advanced.
2. Stakeholders		
Key Players	Technology companies, from start-ups to large corporations, renewable energy providers, education and research institutions, government organizations, innovation networks, environmental companies, public-private partnerships, local government	Example: Renewable energy providers, environmental NGOs, tech startups, local government.
Suppliers	Renewable Energy Companies; Environmental Monitoring Technology Provider; Consulting companies that include the implementation of digital technologies for process optimization and sustainability; Eco-Friendly Equipment Manufacturers; Technology Startups.	Example: Sensor suppliers for air quality, IoT-enabled energy meters.
Producers	Part of the EDP Group, EDP Renewables invests in renewable energies, such as solar and wind, and utilizes digital technologies to optimize the production and distribution of energy; Some initiatives in the region combine agriculture with solar energy, using digital technologies to monitor agricultural production and energy generation simultaneously.	Example: Firms using AI for predictive maintenance in wind farms.

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Support Organizations	Innovation poles, EU-funded projects, universities and polytechnics, local authorities, environmental organisations, SMEs and consultancy firms.	Example: Innovation hubs, EU-funded projects, sustainability consultants.
3. Value Chain Stages		
Input Supply	Digital technologies to monitor crops and optimize resources; energy storage systems; materials and construction techniques that minimize environmental impact; software and applications to monitor and optimize energy consumption; devices to monitor air quality.	Example: Solar panel components, IoT devices for energy monitoring.
Production	Implementation of sensors and IoT devices to monitor energy consumption, air quality, pollution levels, and other environmental parameters in real time; Creation of platforms that utilize artificial intelligence algorithms to optimize energy distribution and consumption, integrating renewable sources such as solar and wind; Development of solutions that promote energy efficiency in sectors such as agriculture, industry, and buildings, using data analytics to identify opportunities for reducing consumption.	Example: Software for energy grid management, apps for waste tracking.
Processing	Implementation of agriculture practices adapted to the climatic and soil specifics of Alentejo; Promotion of rainwater harvesting and efficient management of water resources; Adapting incentive programs for the installation of solar panels on small properties and public buildings; Implementation of training and awareness programs in schools and communities, aimed at environmental education; Promotion of responsible tourism practices that respect biodiversity.	Example: Modifying energy efficiency tools to match local energy policies.

Section	Information	Examples/Guidance
Distribution	Companies, Public Institutions, Civil Society Organizations, Public-Private Partnerships, B2B Platforms.	Example: B2B platforms, government procurement, partnerships with utilities.
Adoption/Utilization	Energy Management Systems, IoT Sensors, Waste Management Applications; Water Quality Monitoring	Example: Smart energy grids in Gabrovo, water quality monitoring in Alentejo.
4. Challenges & Bottlenecks		
Skills Gap	Lack of knowledge about water management, lack of specific training, scarcity of research that specifically addresses the needs and characteristics of Alentejo regarding sustainability and technologies; need for information and capacity building on how to implement sustainable business models.	Example: Lack of expertise in renewable energy analytics.
Infrastructure	Limitations in internet connectivity in rural areas, affecting the ability to collect and analyze environmental data in real time; Inequality in access to the internet and digital services; Need to modernize energy storage infrastructures to optimize the use of available renewable sources;	Example: Inadequate smart grid infrastructure, limited sensor coverage for water quality.
Policy & Regulation	The complexity and uncertainty of regulatory frameworks can be a significant obstacle. The bureaucratic process for installing new energy infrastructure can be complex and time-consuming, discouraging investment.	Example: Complex approval processes for renewable energy projects.
Investment Gaps	The funding priorities may not be sufficiently aligned with the specific needs for innovation in ICT and energy, leading to a diversion of resources to other sectors deemed more priority. The process of applying for EU grants can be complex and time-consuming, which may discourage many initiatives, especially smaller ones. Some funding programs may have eligibility criteria that are difficult for small	Example: Limited access to green financing or EU sustainability grants.

Section	Information	Examples/Guidance
	and medium-sized enterprises (SMEs) or startups to meet, making access to these resources complicated.	
5. Regional Strengths		
Unique Assets	Alentejo is one of the regions in Portugal with the greatest potential for installing wind and solar farms, taking advantage of its vast area and high solar incidence. It is also known for its diversity of agricultural products. Promoting agrotourism in the region allows visitors to learn about sustainable agricultural practices and take part in activities related to local production.	Example: Abundant renewable energy resources in Sicily, strong agricultural sustainability focus in Alentejo.
Supporting Ecosystem	Startup Incubators and Accelerators, Research Centers, Business Associations, Collaboration Networks between Municipalities, Universities, Agricultural Cooperatives.	Example: Regional universities, innovation labs, green energy cooperatives.
6. Opportunities		
Emerging Trends	Smart Cities and Intelligent Infrastructures; Digitalization and Digital Transformation; the use of ICT for precision agriculture has been gaining increasing prominence.	Example: Growing interest in carbon tracking apps, IoT in renewable energy systems.
Collaboration Potential	Collaboration between government bodies, private sector stakeholders, civil society organizations and local communities is vital for effective regional development. Strengthened partnerships between Alentejo and Attica, serving as a model for cross-regional collaboration in leveraging technology for sustainable tourism development. Strengthened partnerships and knowledge networks between Alentejo and Gabrovo, serving as a hub for technology transfer, skills development, and industry collaboration in the broader European.	Example: Joint smart energy projects between Sicily and Gabrovo.

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Funding Opportunities	Green Investment Funds, Angel Investors and Venture Capital, Public-Private Partnerships, EU Green Deal, Horizon Europe, LIFE program grants, Portugal 2030.	Example: EU Green Deal, Horizon Europe, LIFE program grants.
7. Recommendations		
Training Programs	Training in renewable energy software, workshops on digital tools for the circular economy; Advocate stable regulatory frameworks, market incentives and investments in network infrastructure to provide long-term market security and attract investments in energy; Establish partnerships between local universities and companies in the renewable energy sector to develop innovative technologies and sustainable solutions; Establish regional networks that connect companies, educational institutions and non-governmental organizations to share knowledge and resources.	Example: Renewable energy software training, workshops on digital tools for circular economy.
Policy Reforms	Incorporate the use of ICT in public policies related to the environment, transport, energy and waste management; Create a regional strategic plan that integrates ICT and sustainability, defining clear targets and indicators; Establish norms and regulations that encourage the use of ICT for environmental monitoring and management; Encourage research into the impact of ICT on environmental and social sustainability; Encourage partnerships between the public and private sectors to develop ICT projects aimed at sustainability; Develop ICT and sustainability training programs for professionals and students, promoting partnerships with universities and technical institutions.	Example: Incentives for digital tools in renewable energy.
Infrastructure Investments	Investment in key focus areas, such as renewable energy, sustainable agriculture, and digital transformation, to	Example: Smart grid upgrades, IoT-enabled

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	test and validate innovative solutions; investment in wind farms; the installation of intelligent energy management systems (smart grids) to optimize consumption and distribution; investment in R&D centers focused on clean technologies and renewable energies; investment in biogas plants to promote the circular economy.	environmental monitoring systems.
Pilot Projects	Launch pilot projects which aim to stimulate the digitalization of small and medium-sized enterprises (SMEs) in the region, including support for training in digital skills and the implementation of technological solutions; Joint research projects on renewable energy solutions; Joint development of intelligent agricultural solutions; Developing intelligent agricultural solutions.	Example: Smart agriculture project in Alentejo, digital air quality monitoring in Gabrovo.