**AI ASSESSMENT AND CONSULTATION**

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| **Company Name:** | Methuselah AS |
| **Country:** | Norway |
| **Consultation date:** | 18-08-2024 |
| **Expert(s):** | Dr. Klaus Müller, Dr. Nina Hansen |
| **Consultation type: (Regular/Pop-up)** | Pop-up |

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| **AI maturity level:**  *(How mature and advanced the company’s AI technologies and capabilities are.)* | Methuselah AS, based in Norway, is a technology company specializing in data analytics solutions for the maritime industry. While they possess strong capabilities in data management and analytics, their experience with AI is still in the initial stages, and their current AI maturity is rated as low to moderate. |
| **Clear Definition of Goals:**  *(Whether the company’s aims and objectives are clearly articulated and achievable.)* | The company has a clear objective of enhancing maritime safety by implementing AI-driven predictive analytics to monitor and predict equipment failures on ships. |
| **Current Solution Development Stage:**  *(Stage of development and readiness of the company’s AI solution)* | Methuselah AS currently uses a traditional statistical analysis approach to monitor the health of maritime equipment. This process involves analyzing historical data and identifying patterns that might indicate potential failures. The company is now exploring the use of AI to automate and improve the accuracy of these predictions. Initial experiments with basic regression models have shown potential, but the company has not yet ventured into more sophisticated AI solutions. |
| **Validity of Concept and Authenticity of Problem Addressed:**  *(Is the company’s idea practical, innovative, and addresses a genuine market need.)* | The concept of applying AI to improve maritime safety through predictive maintenance is both valid and addresses a critical need in the industry. The integration of AI can significantly reduce the risk of equipment failure at sea, thereby enhancing safety and reducing costs. |
| **Integration and Importance of AI in the Idea:**  *(How central AI is to the company’s proposed solution and its significance in solving the problem.)* | AI is integral to the company’s vision of providing real-time predictive insights into the health of maritime equipment. By leveraging AI, Methuselah AS aims to transition from a reactive maintenance model to a predictive one, allowing for proactive interventions that prevent costly and dangerous equipment failures. |
| **Long-Term Vision and Growth Plan:**  *(Company’s future aspirations and its roadmap to achieve them)* | The company has a long-term vision to expand its AI capabilities beyond predictive maintenance, aiming to offer a comprehensive suite of AI-driven solutions for the maritime industry, including route optimization and fuel efficiency management. |
| **Identified Target Market and Customer Segments:**  *(Clarity and appropriateness of the company’s target customers)* | Their target market includes shipping companies and maritime operators, particularly those focused on large cargo vessels and offshore platforms. |
| **Data Requirement Assessment:**  *(Clarity in what data is needed)* | Methuselah AS requires extensive sensor data from maritime equipment, including engine performance metrics, vibration analysis, temperature readings, and maintenance logs. Additionally, they need access to historical data on equipment failures to train and validate their AI models. |
| **Data Collection Strategy:**  *(Company’s plan for gathering, storing, and utilizing data, ensuring it's both clear and feasible.)* | The company has already started collecting relevant data through partnerships with several shipping companies. This data is streamed in real-time from the ships to their central database, where it is stored and analyzed. The company plans to expand its data collection efforts to include more diverse types of equipment and environmental conditions. |
| **Technical Expertise and Capability:**  *(Company’s technical skillset and its ability to execute the proposed idea)* | The team at Methuselah AS has a solid foundation in data analytics and software development, but their expertise in AI is still growing. They have a keen interest in advancing their AI capabilities and are actively seeking guidance to accelerate this process. |
| **Expectations from FAIR Services:**  *(What services/recommendations does the Company require and what can be offered?)* | Methuselah AS is seeking technical advice from FAIR Services on selecting appropriate AI models for real-time predictive analytics, as well as assistance with integrating these models into their existing systems. |
| **Recommendations:**  *(Future steps, suggestions for improvement)* | |
| The initial steps taken by the company with basic regression models are promising, but more advanced AI techniques should be explored to achieve greater predictive accuracy. Time-series analysis models, particularly LSTM (Long Short-Term Memory) networks, are recommended for processing the sequential data generated by maritime sensors.  To enhance the predictive maintenance system, the following steps are recommended:   * Ensure that all sensor data is of high quality, with consistent formatting and minimal noise. This may involve preprocessing steps such as filtering and normalization to prepare the data for AI analysis. * Explore advanced time-series analysis models, including LSTM networks and GRUs (Gated Recurrent Units), which are well-suited for handling the temporal dependencies inherent in maritime sensor data. * Work on integrating these AI models with the existing monitoring systems, ensuring that they can process real-time data streams without causing latency or disruptions. * Begin with small-scale pilot projects to test and refine the AI models. Use historical data to simulate real-world conditions and adjust the models accordingly before full-scale deployment. * Implement a system for continuous monitoring of the AI models’ performance, allowing for regular updates and improvements based on real-world feedback and changing conditions at sea. | |