

Smart Customer and Supplier Relationship Management (RM)

Maintaining customer and supplier satisfaction in the maritime domain requires effective RM. Intelligent support systems, leveraging various data sources, can offer round-the-clock information services on schedules, statuses and locations of vessels or cargo. Measure satisfaction and provide opportunities for improvement based on multiple channels, including email, social media, reviews, call recordings, and surveys. Historical data analysis, along with shipping, weather, freight rates, and carrier information, helps identify customer preferences and priorities for tailored recommendations and optimal solutions.

- Conversational agent for customer support
- Sentiment analysis of customer feedback
- Personalized recommendation systems
- Target group-specific advertisements
- Smart pricing strategies based on customers satisfaction

Intelligent Communication Solutions

In the global and multilingual maritime logistics industry, effective communication is essential for collaboration and seamless operations to ensure safety. However, communication can be challenging due to diverse and multilingual crews, varying levels of English proficiency, different dialects, environmental factors, and high-stress work situations.

- Automated speech recognition of VHF radio communication
- Multilingual communication support
- Automated e-mail and chat responses
- Real-time communication and alerts for updates, events and disruptions
- Navigational assistance and warnings through text and speech
- Voice-controlled interfaces



Existing challenges for the implementation of maritime NLP are the availability and quality of domain-specific noise free data, specific terminology, capturing multilingualism, accents and pronunciation. Overcoming these challenges requires the development of customized domain- and task-specific NLP models. Depending on the application, the solution is a specifically trained hybrid model. Since data collection can be a problem, continuous data collection, model training and evaluation provide a solution, along with feedback through a human-in-the-loop approach. A custom product also provides the benefit of data protection and privacy.

If you're ready to revolutionize your maritime operations and leverage the power of NLP, we invite you to explore cutting-edge solutions offered by our team. Our tailored NLP applications are designed to address the specific needs of the maritime industry, helping you to streamline processes, enhance safety, and boost overall efficiency. Our experts are committed to guiding you through the implementation process.

Don't miss the opportunity to stay ahead in the evolving maritime landscape. Get in touch with us today to learn how NLP can take your business to a new level.

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**Large-Scale Text Analysis for
Business Intelligence**

Maritime Natural Language Processing (NLP)

Large-Scale Text Analysis for Business Intelligence

The maritime industry faces several challenges and opportunities in today's dynamic and interconnected world. With increasing globalization, growing customer demands, and evolving regulations, involved stakeholders are under immense pressure to optimize operations, reduce costs, and enhance overall efficiency.

Navigating through these complexities requires innovative solutions and Natural Language Processing (NLP) holds immense potential to address these challenges. By harnessing the power of NLP, the maritime sector can break language barriers, streamline communication, and gain valuable insights from vast amounts of textual data.

By understanding the unique context of the maritime domain, NLP can revolutionize business intelligence, enabling data-driven decision-making and unlocking new potentials for growth.

Empowering Maritime Intelligence: NLP Techniques for Advanced Analysis

The field of speech and language is vast and offers a huge application potential:

Machine Translation (MT) enables efficient multilingual communication on-board, for port operations and customer service.

Information Extraction (IE) & Retrieval (IR) can provide maritime search engines with information on vessels, ports, routes, historical records, meteorological/oceanographic data, regulations/policies and news.

Document Classification for categorizing incident, vessel, cargo, port, or terminal documents to organize and retrieve critical or conditional information for fleet health and readiness.

Sentiment Analysis measures the opinions expressed in text for customer and employee satisfaction, brand perception, market research or competition analysis.

Question Answering Systems (QAS) & Chatbots provide quick and efficient assistance for customer support, management and operations.

Topic Modeling identifies and extracts key themes, which can be utilized for maritime news analysis, data collection, social media monitoring and various documents and reports.

Text Summarization & Natural Language Generation (NLG) creates concise and coherent text to automate notifications and alerts, reports, and status updates.

Text-to-Speech (TTS) & Automatic Speech Recognition (ASR) are part of speech technology enabling voice control, alerts, documentation / reporting, navigational guidance, auto transcription, enhanced bridge and VHF communication for hands free operations.

Unlocking hidden Value: Key Benefits of NLP for the Maritime Industry

NLP offers a variety of benefits for the maritime industry, which are listed below:

- Efficient, global and consistent communication by reducing miscommunication and misunderstandings while facilitating better collaboration and information sharing
- Eliminate language barriers with translation capabilities
- Reduce labor costs through increased automation
- Reduction of manual error by streamlining processes
- Reduced administration burden
- Better resource management
- Ensure compliance through consistency, standardization and automation
- Improvement of efficiency and productivity through faster and more precise operations
- Enhance safety through risk analysis and accident prevention
- 24/7 customer support and real-time, on-demand operations
- Increase customer and employee satisfaction by automatically analyzing reviews and surveys and gain information about improvement opportunities
- Supply chain risk reduction and optimization with automated tracking and analysis for transparency
- Intelligent decision support providing real-time analytics for assistance and recommendations by enhancing situational awareness
- Environmentally friendly, due to process optimization and route planning lead to reduced emissions



NLP Business Solutions

Intelligent Document Management

NLP can be used to reduce administrative overhead by streamlining and standardizing the maintenance and filling out of various important documents in daily maritime operations, such as bills of lading, shipping manifests, logbooks, incident reports, crew lists, certificates, import and export declarations, navigational manuals & logs, and more. As well as handling commercial invoices and contracts, processing weather forecasts to ultima-

tely improve efficiency and accuracy.

- Automated data extraction and analysis to find patterns and trends
- Automated report generation, based on data collected from various sources
- Automated freight document classification

Smart Management Assistance

Daily maritime operations require making strategic and operative decisions based on vast amounts of information. Data from various sources can provide decision support and recommendations on vessel and order-related questions, shipment tracking, navigation advice, route planning based on weather and warnings, and ensuring compliance with regulatory requirements.

- Intelligent chatbots and virtual assistants
- Weather and warning updates
- Personalized industry news, get topics, trends and conflicts based on news and social media information
- Risk assessment and fraud detection
- Compliance and regulatory monitoring
- Smart freight planning
- Competition analysis, product patterns of success, weaknesses in the portfolio or the effectiveness of the marketing efforts of a competitor can be revealed

Smart Human Resources

Managing a large number of employees in administrative, operational, and nautical positions is challenging, but streamlining the hiring process and evaluating feedback helps sustain satisfaction, engagement, identify areas for growth, and gather ideas for business improvement. Remote health monitoring, competency analysis, intelligent performance reviews, and conversational agents further support employee well-being, development and training in the maritime domain.

- Automated resume screening
- Sentiment analysis of employee feedback
- Health monitoring
- Skill gap analysis
- Intelligent performance reviews
- Conversational agent for teaching and training