The Disrupting Influence of AI and the Potential Impact of ChatGPT on Maritime Law and Practice

Drew Stapleton, Ph.D., MBA[1]

Katie M. Stapleton, MS, BS[2]

Karen N. Stapleton, BA[3]

Jason Woldt, DBA, MBA[4]

Abstract

We elucidate the disrupting technology of Artificial Intelligence (AI) with a focus on ChatGPT, a language-learning model that has made a significant and immediate impact on many facets of life. We briefly review the genesis and advancements of AI over the past 75 years before explaining the disruptive potential of ChatGPT, including its early applications in business. We next dive into potential applications in the maritime sector including contract review and analysis, marine-incident investigation, environmental monitoring and compliance, and legal research and information retrieval. We provide a discussion on the potential benefits of ChatGPT in maritime law, along with the varied challenges of adoption and implementation of AI-driven tools such as ChatGPT. We conclude with a warning that AI and ChatGPT are not substitutes for human expertise and would need significant monitoring and a heightened degree of caution in order to realize the immense potential of this disruptive technology.

Introduction

ChatGPT is a state-of-the-art language model developed by OpenAI that uses advanced AI techniques to generate human-like text responses (Marr 2023) . ChatGPT is the latest in a series of AIs, referred to as GPTs, an acronym which stands for Generative Pre-Trained Transformer. This technology has the potential to quickly disrupt many industries (e.g., content creation, healthcare, transportation) by automating tasks previously performed by humans. ChatGPT is also highly flexible when fine-tuned for specific-use cases, making it an adaptable tool for many applications. Its ability to generate coherent, relevant text has the potential to revolutionize the way we interact with technology and improve the efficiency and accuracy of processes. ChatGPT

[1] Astapletonuwlax.edu. (608) 387-2317.
[2] katiemelendrezstapleton@gmail.com (608) 386-1248.
[3] kstapleton@uwalumni.com (608) 317-5513.
[4] woldtj@uwoshkosh.edu. (262) 988-4206.

was first introduced in 2019 and is based on the transformer architecture, a type of neural network well-suited for processing and generating text. The first widely available version was released on November 30, 2022, and within five days had one million users.

Importantly, ChatGPT is not a substitute for human expertise in all contexts. While AI has immense potential to enhance and expedite many processes, not all industries or sectors will witness this disrupting technology disseminate at record-speed. While many supply chain processes in particular sectors will benefit by automating many routine tasks, others such as the maritime sector will need to proceed cautiously. ChatGPT, for instance, was recently identified spreading misinformation about maritime law (*TradeWinds* 2023). It has misidentified the meaning of maritime trade nomenclature (e.g., it is inconsistent in defining the term "bill of lading," (Manaadiar 2023)); created intellectual property disputes (Wilkenson 2023); and, raised liability issues involving machine learning (Pribyl 2023), to name a few. These inaccuracies can be consequential for complex situations such as determining legal liability and undermine the future use of the technology. This paper will elucidate AI's impact, particularly focusing on the maritime sector of supply chains. AI models like ChatGPT are not a panacea nor are they a substitute for human expertise, but they do have the potential to be a game-changer in certain arenas saving time and money on preparatory tasks that can be routinely automated.

Brief History of AI Language Models and ChatGPT

The history of AI language models dates to the 1950s, when researchers first began exploring the potential of artificial intelligence for natural-language processing. Over the years, significant advancements have been made in the development of AI language models.[5] These advances in AI language models have made it possible to develop sophisticated language-based applications, such as chatbots, voice assistants, and language translation tools, which are now widely used in many industries, including the maritime sector. One of the most impactful and disruptive innovations in AI is ChatGPT.

[5] Early AI models:

1. Early AI models, such as ELIZA (1964), focused on basic language processing tasks, such as pattern recognition and text generation.
2. Rule-Based Models: In the 1970s and 1980s, rule-based models became popular, using pre-defined grammar rules to process natural language inputs.
3. Statistical Models: In the 1990s and 2000s, statistical models, such as n-gram models, became widely used for natural language processing tasks, using statistical techniques to analyze language patterns and make predictions.
4. Deep Learning Models: In recent years, deep learning models have become the dominant approach for AI language processing. These models, such as recurrent neural networks (RNNs) and transformers, use deep neural networks to process large amounts of text data and perform advanced language tasks, such as language translation and text summarization.
5. OpenAI GPT-3: In 2020, OpenAI released GPT-3 (Generative Pretrained Transformer-3), a large language model that set new benchmarks for natural language processing tasks. GPT-3 can generate human-like text and perform a wide range of language tasks, including translation, summarization, and question-answering.

In the early days of AI research, some of the most influential models included a) The Perceptron model developed by Frank Rosenblatt in 1958, which was a linear classifier for binary classification problems (Rosenblatt, F. (1958); b)The Logic Theorist developed by Allen Newell and Herbert A. Simon in 1955, which was a general problem-solver that used rules of inference to prove mathematical theorems (Newell, A., & Simon, H. A. (1955); and c) The General Problem Solver developed by Herbert A. Simon and Allen Newell in 1957, which was a program that used heuristics to solve a wide range of problems (Simon, H. A., & Newell, A. (1957). These models laid the foundation for further advancements in AI research and helped establish the field as a legitimate area of scientific inquiry.

Once it got its footing established by these early pioneers AI continued to develop over the decades. In the 1960s, the field of AI research was founded at a conference at Dartmouth College in Hanover, New Hampshire. In the 1970s, AI research was primarily focused on trying to make computer programs that could perform tasks that typically required human intelligence, such as understanding natural language, solving problems, and recognizing objects in images. In the 1980s, the development of expert systems, which are computer programs that mimic the decision-making abilities of a human expert in a particular field, became a major focus of AI research. The 1990s saw AI research make significant progress in areas such as machine learning, computer vision, and natural-language processing. The Internet also became widely available, providing a new platform for AI applications. As we entered the 2000s, AI research continued to make advances, particularly in the areas of machine learning (ML) and statistical methods. The development of more powerful computers and larger data sets made it possible to train more sophisticated models. In the 2010s, AI began to have a major impact on a wide range of industries, including finance, healthcare, and transportation. The development of deep learning (DL), a subfield of machine learning, revolutionized the field of computer vision and led to significant improvements in speech recognition and natural language processing.

Today, AI continues to have a profound impact on society, with new applications being developed in fields such as robotics, autonomous vehicles, and biomedicine. AI is also playing an increasingly important role in scientific research, with new AI methods being used to analyze data from a variety of sources. One of the most impactful developments is OpenAI's ChatGPT – a disruptive technology impacting numerous industries in a short period. ChatGPT provides a conversational interface that allows one to ask questions in natural language and get answers. It can follow instructions and has built-in safety features that attempts to filter out harmful content.[6] OpenAI acknowledges that ChatGPT "sometimes writes plausible sounding but incorrect or nonsensical answers". This behavior is common to large language models and is called AI hallucination (Schwarz2023).

Disrupting Potential of ChatGPT

The initial applications of ChatGPT focused primarily on natural language processing (NLP) tasks, such as text generation, language translation, and question-answering. ChatGPT was trained on a massive dataset of text from the internet, which allowed it to learn to understand and generate text that is like human writing. One of the most notable early applications of

[6] GPT-4, the newest OpenAI model, was released on March 14, 2023.

ChatGPT was its use in generating creative writing, such as fiction and poetry. Its ability to generate coherent and imaginative text quickly and easily caught the attention of many people, and it soon became a popular tool for writers and content creators. Both AI and Machine Learning[7] are core pillars of industry 4.0. While Industry 4.0 was first forecast as a revolutionary concept in manufacturing, the use of digital technologies has thrust it into an ever-expanding domain that is not only revolutionary but disruptive as well (Stapleton & Stapleton 2022).

In addition to its applications in creative writing, ChatGPT has also been used for a variety of other Natural Language Processing (NLP) tasks, such as summarization, sentiment analysis, and text classification. It has further been used in customer service and support, where it can be trained to understand and respond to customer inquiries, providing quick and accurate answers.

Overall, the initial applications of ChatGPT demonstrated its versatility and usefulness as a language model. Since its introduction, it has continued to evolve and expand its capabilities, offering new opportunities for innovation and advancement in the field of AI.

ChatGPT in Business

The earliest applications of ChatGPT in business practice have primarily been focused on improving customer service and support, virtual assistance, knowledge management, and content generation. Some examples include:

Customer Service Chatbots: ChatGPT technology has been used to develop chatbots that can interact with customers in real-time, providing quick and accurate answers to their questions. This has helped businesses to improve their customer experience and increase customer satisfaction.

Virtual Assistant Applications: ChatGPT technology has also been used to develop virtual assistants that can perform a range of tasks, such as scheduling appointments, making reservations, and providing information about products and services. This has helped businesses to automate many routine tasks and improve efficiency.

Knowledge Management Systems: ChatGPT has been integrated into knowledge management systems to provide businesses with a powerful tool for finding and retrieving information. This has helped businesses to reduce the time and resources required for research and analysis.

Content Generation: ChatGPT has been used to generate marketing and advertising content, such as product descriptions, social media posts, and email campaigns. This has helped businesses to

[7] According to Aury (2023), the Council of Europe has proposed the following distinction between AI and Machine Learning: AI refers to systems that are pure science fiction (so-called "strong" AIs with a self-aware form) and systems that are already operational and capable of performing very complex tasks (face or voice recognition, vehicle driving – these systems are described as "weak" or "moderate" AIs). …essentially using machine learning…Machine Learning is … an inductive approach: …letting computers discover rules by correlation and classification, on the basis of a massive amount of data…the objective of Machine Learning is not really to acquire already formalized knowledge but to understand the data structure and integrate it into models (in particular, to automate tasks).

save time and resources in creating high-quality content, while also providing customers with more relevant and engaging information.

These are just a few examples of the earliest applications of ChatGPT in business practice. As the technology continues to evolve and expand, it is likely that we will see even more innovative uses of ChatGPT in the future. Schwarz (2023) gives a general list of positives and negatives of ChatGPT's capabilities.[8]

Potential Applications of ChatGPT in the Maritime Sector:

Maritime Law is a complex and ever-evolving field that covers a wide range of topics, from commercial shipping and the transportation of goods to environmental protection and the safety of seafarers (The Maritime Association of the United States (2023). In recent years, advancements in technology have created new opportunities for improving many aspects of maritime operations, and ChatGPT is one such technology that holds great promise for the future. Potential Applications of ChatGPT in Maritime Law include: Contract Review and

[8] **The positives** Here are the potential benefits of ChatGPT:
– ChatGPT provides specific responses to user queries and questions.
– Follow-up questions and prompts. ChatGPT can answer follow-up questions and prompts as you continue an ongoing dialogue with it, giving you more understanding on the original question you asked.
– Admits its mistakes. If something goes wrong, ChatGPT seems to recognize that, will admit its mistakes, and helps you get to the right answer.
– Reject inappropriate requests. ChatGPT is designed to filter out inappropriate language and requests.
– User-friendly. Chatting with ChatGPT seems no different from speaking with another human and provides fluid and accurate replies. It is user-friendly, composes its replies the way a human might, and has an intuitive interface.
– ChatGPT is multilingual. The software can detect dialogue in 73 different languages and can provide intelligent answers in the language of the user.
The negatives The drawbacks and disadvantages of ChatGPT:
– ChatGPT is designed to generate plausible conversations based on what it has learned from training data, but sometimes it can return answers that don't make any sense or are totally inaccurate.
– Monitoring for misuse. The use of natural language processing could be considered a double-edged sword. While it allows the system to follow instructions, it can also be convenient for misusing it too. If users give instructions to generate unsafe responses, ChatGPT may not be able to identify those instructions and could process them.
– Lack of knowledge and making up facts. At this time, ChatGPT has no data beyond September 2021 so cannot deal with topical questions. ChatGPT is only as accurate as the data it is fed. If the data is outdated or insufficient, it can lead to inaccurate responses and even complete falsehoods.
– Lack of quality control. Quality control is difficult to implement when using ChatGPT. Since it is simply generating text based on what it is told, it is unable to understand any nuances or levels of quality.
– ChatGPT cannot be used in all situations. For complex tasks involving reasoning or explanation, it is not suitable.
– Since ChatGPT is modelled on natural language processing, the AI is not sophisticated enough to understand the user's moods or facial expressions. Similarly, its accuracy in detecting and responding to the user's intent is relatively low.

Analysis, Maritime Incident Investigation, Environmental Monitoring and Compliance, and Legal Research and Information Retrieval. We will address and discuss each category below.

Contract Review and Analysis: ChatGPT could be used to analyze and review maritime contracts, such as bills of lading and charter parties, to identify potential legal issues or areas of risk. This could help parties to resolve disputes before they escalate, saving time and resources. ChatGPT can be used as a tool for contract generation and analysis in the maritime industry by leveraging its advanced NLP capabilities. By training ChatGPT on a large corpus of maritime law and contracts, it can be used to generate new contracts, summarize existing contracts, and perform contract analysis tasks such as clause extraction and sentiment analysis. For contract generation, ChatGPT can be used to create new contracts based on a set of inputs and requirements, such as the parties involved, the scope of the contract, and the terms and conditions. This can help to save time and resources compared to traditional manual contract creation methods, while also reducing the risk of human error. ChatGPT can also aid in the execution of Smart Contracts, which are legally enforceable contracts that automatically execute when certain conditions are met (Levi et al, 2018). For contract analysis, ChatGPT can be used to perform tasks such as clause extraction, which involves identifying and extracting specific clauses or sections of a contract, and sentiment analysis, which involves analyzing the tone and sentiment expressed in a contract. This can help to identify potential issues or areas of concern in contracts, such as conflicting terms or clauses that may be unfavorable to one party.

Accordingly, in the maritime industry, the use of ChatGPT for contract generation and analysis has the potential to improve the efficiency and accuracy of contract-related tasks, while also reducing the risk of human error. This can lead to more streamlined and efficient operations, as well as improved legal compliance and risk management. However, it is important to note that the use of ChatGPT for contract generation and analysis should not be seen as a substitute for human expertise and judgment. The results generated by ChatGPT should always be reviewed and validated by legal experts to ensure that they are accurate, relevant, and in compliance with relevant laws and regulations.

Maritime-Incident Investigation: In the event of a maritime incident, ChatGPT could be used to analyze relevant data, such as vessel logs, weather reports, and witness statements, to determine the cause and potential liability. This could assist in speeding up the investigation process and help ensure that the correct parties are held accountable. ChatGPT can be used as a tool for maritime incident investigation by leveraging its advanced natural language processing capabilities. By training ChatGPT on large datasets of maritime incident reports and investigation documents, it can be used to assist investigators in several ways, such as:

Data Analysis: ChatGPT can be used to analyze large amounts of data related to maritime incidents, such as shipping logs, vessel records, and weather data. This can help investigators to identify patterns and correlations that may not be immediately evident to the human eye.

Report Generation: ChatGPT can be used to generate incident reports based on the data it has analyzed. This can help investigators to quickly and efficiently produce reports that are well-structured, accurate, and easy to understand.

Clause Extraction: ChatGPT can be used to extract specific clauses or sections from incident reports, such as the cause of the incident, the contributing factors, and the recommendations for future actions. This can help investigators to focus their attention on the most critical elements of an incident report.

Sentiment Analysis: ChatGPT can be used to perform sentiment analysis on incident reports, which involves analyzing the tone and sentiment expressed in the report. This can help investigators to identify potential areas of concern, such as negative attitudes or opinions about the incident, which may need further investigation. Another consideration is how will liability and its consequences be assessed when incidents occur in operations involving machine learning? (Pribyl 2023).

Suppose humans are removed from the onboard equation, and the machine is responsible for the decision-making. In that case, this undoubtedly will lead to cracks in the legal foundation and strain current rules for vessel operations, legal precedent related to marine incidents, contractual obligations, terms in standard industry contracts, and liability regimes (including product liability and potential strict liability applications). Should a crewless vessel be involved in marine casualty, the owner may attempt to limit liability if it can prove it did not possess "privity or knowledge" of the negligent acts or unseaworthy conditions that caused or contributed to the accident. Thus, in litigation following such incidents, we may also see heightened analysis of how a shipowner can prove the absence of privity or knowledge of negligent acts. For example, is it enough to ensure that a vessel's computer antivirus protections were updated? Will new experts be needed to assess the examination of an AI system to consider whether a vessel was seaworthy? Thus far, we have limited maritime cases on which to rely for guidance, though case law involving assessments of an onboard "glitch" offers signals of how courts may view such situations. Much remains in the realm of the unknown.

The use of ChatGPT for maritime incident investigation has the potential to improve the efficiency and accuracy of incident investigations, while also reducing the risk of human error. By automating many of the routine and repetitive tasks associated with incident investigation, investigators can focus their attention on the most critical aspects, leading to more thorough and effective results. Again, while ChatGPT can assist investigators in several ways, it should not be seen as a substitute for human expertise and judgment. The results generated by ChatGPT should always be reviewed and validated by experienced maritime incident investigators to ensure that they are accurate, relevant, and in compliance with relevant laws and regulations.

Environmental Monitoring and Compliance: ChatGPT could be used to monitor vessel activities and ensure compliance with international environmental laws and regulations, such as the MARPOL Convention. This could help to reduce the risk of environmental incidents and improve the overall sustainability of maritime operations. ChatGPT can aid in maritime environmental monitoring and compliance in several ways:

Data Analysis: ChatGPT can process and analyze large amounts of environmental data collected from ships and offshore structures to identify patterns and anomalies that may indicate environmental risks.

Regulation Compliance: ChatGPT can be trained on maritime environmental regulations and guidelines, such as the maritime pollution-prevention regulations of the International Maritime Organization (IMO). It can assist in ensuring compliance with these regulations by providing instant guidance and advice to ships' crews and shore-based personnel.

Incident Response: In case of an environmental incident, ChatGPT can help in quickly assessing the situation and providing relevant information and guidance to help mitigate the impact. This can include information on response measures, procedures for reporting incidents, and relevant contacts for authorities and organizations that may need to be notified.

Continuous Monitoring: ChatGPT can continuously monitor environmental conditions, such as air and water quality, and provide real-time updates to relevant stakeholders to help prevent environmental incidents and ensure compliance with regulations.

By using ChatGPT in these ways, organizations involved in maritime activities can improve their environmental performance and reduce the risk of environmental incidents.

Legal Research and Information Retrieval: ChatGPT could be used to provide quick and accurate legal research and information retrieval for maritime-law practitioners. This could assist in providing relevant information and support in complex legal cases. ChatGPT can help in maritime legal research and information retrieval by:

Providing Quick Access to Information: ChatGPT can be trained on a vast range of maritime legal information and can provide instant answers to legal questions. This helps lawyers and maritime professionals quickly access the information they need, saving time and improving efficiency.

Conducting Legal Research: ChatGPT can be programmed to search through legal databases, case law, and statutes relevant to maritime law. It can quickly provide summaries of cases, relevant laws and regulations, and other relevant information to support legal research.

Interpreting Legal Texts: ChatGPT can understand and interpret complex legal texts and can provide clear explanations of legal concepts and provisions. This can be useful in helping lawyers and other professionals understand the legal implications of maritime-related matters and quickly focus on areas that present potential complications and help in preparation of defense.

Providing Comparative Analysis: ChatGPT can compare different legal systems and regulations, identifying similarities and differences and helping lawyers and professionals understand the legal landscape in different countries and regions.

By using ChatGPT for legal research and information retrieval, maritime lawyers and professionals can improve their knowledge and understanding of maritime law, while making more informed expedited decisions. However, it should be treated as a tool, and not a substitute for legal and human expertise.

Maersk is currently investigating the best uses for this disruptive technology even though there is deep uncertainty of where this technology will lead (*International Shipping News* 2023). For now, , the most practical use of this technology at Maersk is in the customer-service area providing accurate tracking information with minimal human intervention. Maersk is diligently working on a protocol for AI generated customer-service content in operations known as Generative AI (ChatGPT) Privacy and Cyber.[9]

Benefits of ChatGPT in Maritime Law: ChatGPT can aid maritime lawyers with increased efficiency, fraud detection, improved accuracy, and enhanced insight into maritime contemporary practice, to name a few. By automating many routine tasks and processes, ChatGPT has the potential to significantly increase efficiency in maritime law. This could lead to faster resolution of disputes and improved decision-making procedures.

Improved Accuracy: ChatGPT's ability to process and analyze vast amounts of data in a matter of seconds can lead to improved accuracy in legal research and analysis. This could help to reduce the risk of mistakes and ensure that relevant information is taken into consideration while saving time and bringing disputes to resolution quicker.

Fraud Detection: AI can be used to detect fraud in maritime operations, such as in the tracking of cargo shipments. For example, AI algorithms can analyze shipping documents and other data to identify anomalies and detect potential fraud.

Cost Savings: By automating many manual tasks, ChatGPT has the potential to save significant amounts of time and money for maritime law practitioners. This could help to make legal services more accessible and affordable for all parties involved and also enable law firms to take on more clients.

While there appear to be multiple potential benefits in implementing the use of ChatGPT for certain legal tasks concerning maritime shipping and trade law, lawyers should proceed with great caution. Some of the challenges in adopting and implementing ChatGPT in maritime law include legal acceptance, data privacy and security, integration with existing digital systems, as well as security and ethical implications of AI-generated legal advice.

[9] Generative AI (ChatGPT) Privacy and Cyber policy will ensure:
1. Data Security: By being clear what you can and can't share with a ChatGPT. For example, sharing non-public (e.g., confidential, sensitive or any info that is not already public) is not allowed, nor is sharing Customer data or Intellectual Property (ideas, processes, technology, etc.). For example, do not share Customer service chats because it may contain pricing, supplier or contract information, or share legal contract drafts that may expose confidential business information.
2. Validation of content: "Human in the loop" validation is required. The ChatGPT responses must be validated to ensure the quality and accuracy of the generated content is guaranteed, before it is shared externally and being representative of Maersk.
3. Transparency to the User: ChatGPT can be perceived as a real person although not capable of functioning like one independently. Users should be informed that they are interacting with an AI language model and that the responses are generated by a machine rather than a human person to provide complete transparency that it is a chatbot to which they are talking.

Legal Acceptance: The use of ChatGPT in Maritime Law will require acceptance from the legal community. Some may view the use of AI in legal processes as a threat to traditional legal practices and may be resistant to change. Still others may see algorithmic artificially created legal products as a substitute for human expertise in maritime law.

Data Privacy and Security: The use of ChatGPT in Maritime Law will require the handling of sensitive information, such as personal data and confidential business information. Ensuring the security of this information will be a major challenge in the implementation of ChatGPT technology. Similarly, property rights in a digital space co-created by AI is still an unsettled matter (See Stapleton & Stapleton 2022). Intellectual property disputes over AI-generated content have furthered the push for oversight (Wilkenson 2023).

Integration with Existing Systems: The implementation of ChatGPT technology in Maritime Law will require the integration of existing systems and processes. This could be challenging, as it will require significant investment in technology and training.

AI systems such as ChatGPT can aid in day-to-day operations in the maritime sector as well. Munim et al. (2020) identified four categories for AI efficiencies: (1) digital transformation, (2) applications of big data from AIS, (2) energy efficiency and (4) predictive analytics. One example is in fine-tuning predictive maintenance. AI can be used to analyze sensor data from ships and port infrastructure to predict when maintenance will be required. This can improve maintenance schedules, reduce downtime, and increase efficiency. Another area of promise is Vessel Traffic Management. AI can be used to analyze real-time vessel traffic data to optimize vessel routes and improve traffic flow in busy ports. This can reduce congestion and increase efficiency, as well as improve safety by reducing the risk of collisions.

In conclusion, the future of autonomous shipping is bright, with ChatGPT-4 and AI-driven vessel navigation and operations poised to revolutionize the industry (Frackiewicz 2023). By embracing these technologies, the maritime sector can unlock numerous benefits, including improved safety, efficiency, and sustainability. However, it is essential to address the challenges and concerns that may arise, ensuring a smooth transition towards a more autonomous and technologically advanced maritime future.

Further Considerations:

As the maritime industry moves towards greater autonomy, it is crucial to address the challenges and concerns that may arise. One such challenge is the potential loss of jobs due to increased automation. However, it is important to note that the adoption of AI-driven technologies can also create new opportunities for skilled professionals, such as data analysts, software developers, and AI specialists. Moreover, the transition to autonomous shipping is expected to be gradual, allowing time for the workforce to adapt and acquire new skills. Another concern is the security and ethical implications of AI-driven technologies. Ensuring the privacy and security of data is paramount, as is addressing potential biases in AI algorithms. The maritime industry, along with regulatory bodies and technology providers, must work together to establish robust guidelines and best practices to address these concerns and mitigate as much as possible the biases inherent in AI systems.

In conclusion, the potential applications of AI in general and ChatGPT in particular in the maritime industry are numerous and varied. While AI is still in the early stages of development in the maritime industry, it has the potential to improve operations, increase efficiency, and improve safety. The development and implementation of AI in the maritime industry will likely be guided by international regulations and standards, such as those set by the IMO.

Importantly, based on our review, we do not recommend that ChatGPT be used as a substitute for human expertise at this point in time. Because Maritime Law is complex and evolving, the infancy of AI and ChatGPT have been prone to error and are not yet calibrated to use accurate terminology and offer reliable conclusions (TradeWinds 2023). The application also has misidentified the meaning of maritime and trade nomenclature and terminology. For instance, it is inconsistent in defining the term "bill of lading" (Manaadiar 2023).

Conclusion

In conclusion, ChatGPT holds great promise for the future of maritime law and practice. Its ability to process vast amounts of data and provide quick and accurate analysis could significantly improve many aspects of maritime operations, from contract review to incident investigation. However, the adoption and implementation of ChatGPT technology in maritime law will require keen human oversight to ensure accuracy and transparency. In general, AI has the potential to revolutionize maritime law and operations, as it has in many other industries. AI can be used to streamline and automate various processes, improve safety and efficiency, and provide new insights for decision-making.

The future of AI and ChatGPT in maritime law, policy, and practice is likely to be significant. AI and ChatGPT have the potential to transform the way maritime law, policy, and practice is conducted, providing numerous benefits including: a) Improved Efficiency and Productivity: AI and ChatGPT can automate repetitive tasks and provide instant access to information, helping lawyers, policy makers, and maritime professionals work more efficiently and productively; b) Better Decision-Making: ChatGPT can provide real-time analysis of legal and policy data, helping decision-makers make informed decisions based on accurate and up-to-date information; c) Increased Transparency: ChatGPT can provide greater transparency in maritime law, policy, and practice by making information and data easily accessible to all stakeholders; d) Better Compliance: ChatGPT can help ensure compliance with maritime laws and regulations by providing real-time guidance and advice to those operating in the maritime sector; and, e) Improved Environmental Performance: ChatGPT can assist in maritime environmental monitoring and enforcement, helping to reduce the risk of environmental incidents and improve overall environmental performance. However, the benefits of ChatGPT do not mitigate the potential hazards.

Of primary concern needing attention are the security and ethical implications of AI-driven technologies (Frackiewicz 2023). Ensuring the privacy and security of data is paramount, as is addressing potential biases in AI algorithms. The maritime industry, along with regulatory bodies and technology providers, must work together to establish robust guidelines and best practices to address these concerns.

Overall, the future of AI and ChatGPT in maritime law, policy, and practice is bright, and it is likely that these technologies will play an increasingly important role in shaping the future of the maritime industry. They are not without hazards, however, and keeping up to date on the advancements in the capabilities in AI models, such as ChatGPT, can both allow for actors to benefit and reduce the possibility that this disruptive technology leads to unintended consequences.

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Author Biographies

Drew Stapleton. Ph.D., MBA, is Professor of Supply Chain Management at University of Wisconsin La Crosse. He has published manuscripts in journals such as *American Business Review, Strategic Management Journal, International Journal of Logistics Management; Journal of Transportation, Journal of Transportation Law, Logistics, & Policy, Quality Management Journal, International Journal of Productivity & Quality Management, The Journal of Selling and Major Account Management, Business Process Management Journal, Journal of Competitiveness Studies*, and *Supply Chain Management: an International Journal*,

amongst others. Before his quarter-century-plus academic career he spent time as a senior Supply Chain Manager at General Motors Corp. His current research interests are Digital Twins/Blockchain/AI/Machine Learning in Supply Chain Management, C-Suite Diversity/Equity issues in investing, and Inventory management and firm performance. Dr. Stapleton has been a Visiting Professor at Viterbo University and at University of London – South Banks. He currently designs and teaches courses for the University of Wisconsin MBA Consortium.

Katie Stapleton, BS, MS, law student, has her MS in public health science and is currently working on commercial tobacco cessation initiatives in Minnesota while she is in law school at Mitchell Hamline School of Lawin St. Paul, MN. She has worked in the corporate world as a materials manager and also as a certified group exercise instructor. Her major motivators are the needs for equity and equality in promoting and enhancing lives for marginalized people.

Karen Stapleton, BA, law-student, has her BA from the University of Wisconsin and is in her final year of law school at Northern Illinois University in DeKalb, IL. She has worked several years in the legal field and in optometry.

Jason Woldt, DBA, MBA, is Associate Professor of Supply Chain Management at University of Wisconsin Oshkosh and has published studies in journals such as *International Journal of Production Economics*, *Advances in Mechanical Engineering*, *Operations Management Education Review*, *Annals of Operations Research*, and *Journal of Humanitarian Logistics and Supply Chain Managemen*t. His research focuses on manufacturing reshoring and manufacturing location decisions, supply chain disruptions, and supply chain aspects of human migration.