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# "Technology and its Transformational Impact on Shipping"

4th Annual Capital Link
China Shipping Forum
"Opportunities & Challenges"

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Computers are getting smarter and deep level of machine learning are used to understand several sectors better.

The Maritime sector can use these technologies in the new generation of operations hubs that are beginning to emerge.

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# ARTIFICIAL INTELLIGENCE

Computers and automation systems are becoming more intelligent allowing this way vessel computers to understand the environment and the maritime conditions they encounter.

Sophisticated algorithms (AI) not only provide onboard computers with methods to solve problems encountered but and can also predict possible future problems.

Worth noting that AI also is important for Maritime Security as it can be used for in image, video, and audio recognition

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# Industrial IoT

Internet of things (IoT) is making inroads into shipping especially in using this technology for container tracking and reefer monitoring.

IoT is increasingly being used for monitoring onboard machinery for performance management and predictive maintenance purposes.

IoT technology is improving dramatically with the use of deep learning and high-volume data analytics

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# AUTONOMOUS SURFACE VESSELS

A controversial subject but a reality.

Limited scale autonomous surface vessels are already demonstrated and trialed, illustrating how unmanned commercial craft could be developed.

However, conservative views and the controversy surrounding this concepts might not allow liberal investment and questions such as how autonomous vessels can cope with congestion might remain unanswered for quite sometime.

# BLOCKCHAIN

This process technology can revolutionize supply chain logistics and cargo trade over maritime routes.

Blockchain processes can improve cyber security in maritime transactions, even with future developments in cloud computing and machine learning. Use of the Blockchain technology by Ship Registries should not be ruled out.

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# AUGMENTED REALITY

Augmented reality (AR) is an interactive experience of a real-world environment where the objects that reside in the real-world are "augmented" by computer-generated perceptual information, sometimes across multiple sensory modalities, including visual, auditory, haptic, somatosensory, and olfactory.

Ship Bridges and ship remote operating centers already are utilizing AR and deliver different levels of information to end-users.

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# VIRTUAL REALITY

VR is encroaching into training technology and shipping. VR and AR can also be used for ship design and engineering processes by evaluating ship interiors, piping requirements, electrical networks and personnel movements in emergencies.

VR can provide new horizons for onboard entertainment and for demonstrating what should happen in emergencies.

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# ROBOTICS

Even though robotics research has been performed for many decades, robotics adoption has not flourished in maritime. However, with increasing interest in developing autonomous vessels, there will be greater need for robotics. Taking humans off ships not only leads to navigational issues, but also adds challenges to maintenance and other manual operations, such as line handling. Perhaps robots can be built to perform these operations with remote control assistance.

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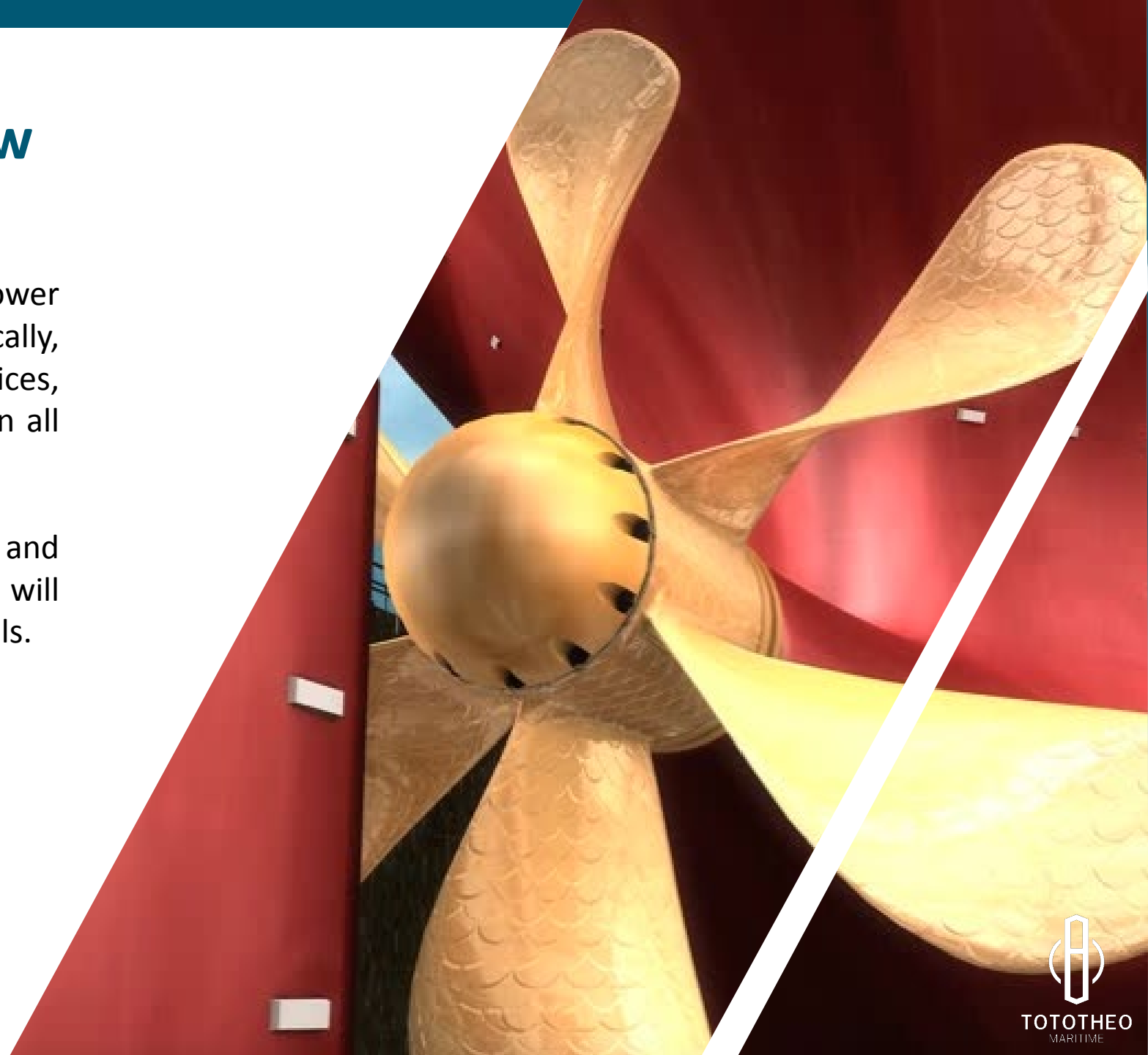
# Power and propulsion: new technologies

In the new order of fuels, arriving in 2020, Power generation must and will be changed dramatically, with alternative fuels, energy-saving devices, renewable energy and hybrid power generation all potentially playing their part.

As the challenges are two-fold: environmental and commercial, the use of machine/intelligence will play a major role in achieving the envisaged goals.



# Conclusion

Although in brief, this presentation tried to capture the impact to shipping of a number of new technologies and the notion of **'Closer than you Think'** has been clearly demonstrated, so don't be left behind.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# THANK YOU!

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