

A STAMP-based Approach to Reduce Oil Pipelines Risks Underwater

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The oil and gas industry has been grappling with significant disruptions in subsea pipelines due to various mishaps, including leaks, ruptures, and explosions. These incidents have led to substantial financial losses and ecological damage. The sector is increasingly turning to maritime autonomous systems to oversee pipeline integrity and aid in the pipeline laying phase of oil and gas infrastructure. However, it's imperative to effectively control or manage the new risks that these technologies bring about.

This paper adopts a Systems Theoretic Accident Model and Processes (STAMP) approach to pinpoint the risks of employing a maritime autonomous system to bolster oil and gas operations.

The advantages of employing the STAMP approach for risk assessment of subsea oil pipelines encompass identifying the causes of human performance, component malfunctions, and organizational factors.

Keywords: Oil, gas, pipelines, reduce, risk, accidents, maritime, underwater.

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