Crane Manufacturing at the Port of Virginia

Technological Politics Framework

(Technical Report)

Awaiting Automation's Arrival

A Virtue Ethics Analysis

(STS Research Paper)

An Undergraduate Thesis Portfolio

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By

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On my honor as a University student, I have neither given nor received unauthorized aid on this assignment as defined by the Honor Guidelines for Thesis-Related Assignments.

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Socio-technical Synthesis: Awaiting Automation's Arrival

My technical work and my STS research are primarily connected through the idea of automation. Specifically, automation's implementation and policy within legal documents drafted by American unions i.e. the International Longshoremen's Association (ILA) and United States Maritime Alliance (USMX) are of utmost influence of fully autonomous implementation. Maritime automation targets various crane infrastructures, and full automation is defined as machinery completely devoid of human interaction. These central ideas of automation are paramount in both my technical project and research paper. My technical work focuses on additional opportunities for the Port of Virginia to combat oncoming fully autonomous operations. On the other hand, my research explores the implications behind policy regulation autonomous operations inside American ports. While my technical and research work approach automation in widely different fashions, the theme of furthering understanding of autonomous policy within the maritime industry is consistent within both.

My technical work delves into a crane manufacturing venture within the Port of Virginia to further their impact on Virginian GDP and combat job loss due to automation. I propose investigating a crane manufacturing facility in the US, specifically Virginia Beach. My capstone team worked closely with Port of Virginia executives consulting them on various extensions to their 2065 Master Plan. Furthermore, we found prior research on wind turbine manufacturing at the Port of Virginia and used this process to draw our own parallels with crane manufacturing. Our goal is to offer a further understanding of emerging technologies, competing ports' advancements, and the Port of Virginia overall.

My STS research also explores automation, but rather than additional opportunities for ports, I investigate the written policy within the previous two master contracts (2012 & 2018)

regulating East Coast Port automation. Beginning with explanations of American maritime unions and East/West Coast regulations, my research paper lays out a complex web of maritime checks and balances. I target policy on automation within master contracts drafted over the past decade between unions and ports. My claim is the East Coast Master Agreement's policy on restricting autonomous operations within East Coast ports is moral because it embodies attributes of temperance, justice, and courage which are cardinal virtues of virtue ethics. In my research paper I delve into an ethical analysis of maritime policy on automation with respect to these cardinal virtues. The goal of my research is to stimulate thought and offer understanding of autonomous policy and operations from an ethical perspective.

Working on both my technical and STS research projects greatly influenced the other. My technical paper expanded on the Port of Virginia's ability to create jobs while also implementing up-to-date autonomous infrastructure. My STS paper similarly provided additional insight of autonomous policy dictating American ports' ability to implement autonomous infrastructure. Both papers' themes further readers' understanding of how automation is handled within American ports, and furthermore offer an alternative perspective on the maritime industry. In summary, working on both research and technical papers allowed me to tackle automation from several angles and time periods to fully understand how modern ports can approach automation policy and infrastructure in the future acknowledging social implications and ethical reasoning.