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For a successful space program: Quality and Safety! (1)

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# THE THREE R'S OF SPACE TRAVEL - RESILIENCY, RECOVERABILITY AND REDUNDANCY: SHOULD WE BE GOING TO THE MOON WITHOUT ESTABLISHED AND AGREED SEARCH & RESCUE PROTOCOLS?

**Abstract**

There was an era where technologies would be designed and developed with one ideology in mind: Speed to Market. This was more about becoming a Market Leader and Thought Provoker than anything else, with that First Mover Advantage being critical to the success of any organization. However, this ideology is arguably short sighted, with concentration only on the design, manufacturing, and production elements of the product supply chain. Whist short sighted? It omits the most critical part, implementation, and ongoing support. This ideology is one that has since changed as technologies have become deployed in mission critical domains whereby the ramifications of failure are not only economic, financial, or legal, but are also critical to one's livelihoods. It's life or death.

The best exhibition of this new world ideology, centering around Resiliency, Recoverability and Redundancy, is the Space Industry. It is arguably one of the only industries were having all these aspects in place can mean the difference between success or failure. And if we home in on the specific concept of Redundancy, its layman's terms it means, to have multiple solutions to the one problem. It's what the Space Industry does best.

Artemis 1 has set in motion the desire to go to the moon, not to visit but to stay, and act as a checkpoint to Deep Space Missions, Mars being the headliner. Artemis 3 is set to land our first humans on the Moon for over fifty years, but in all seriousness, this is almost akin to a demonstrator mission. It really is a Research Development mission to highlight that we have the technology, once again, advanced more than ever before.

But the notion of this means that the risk of failure is still quite high, and in the event of a rescue scenario, we would need a section Spacecraft on stand-by. So, the question becomes, if we have one transportation device, being the SLS, in operation at any one time, how can we perform rescues in Deep Space or on another Celestial Body? Should there be the need for multiple Spacecraft on stand-by? How many? Should there be moon Missions until Rescue Protocols are established? Do there need to be international agreements amongst other Space Faring countries to support in times of need? Exploring this and more, is the true purpose of this Paper.