Leveraging Robotics Data: Three Lessons Learned From Star Trek's Data

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Data is the lifeblood of the robotics industry, yet its value is often overlooked and underprotected. Fortunately, *Star Trek's* Lieutenant Commander Data can teach us a thing or two about how a business Enterprise can realize the full potential Data has to offer. Kick back in Ten Forward as we explore three important lessons learned from our favorite android.

Lesson #1: Understand Data's Value

The Enterprise crew did not understand Data at first—after all, his clinical demeanor and unfamiliarity with social dynamics made him largely unrelatable. However, with time the crew came to appreciate his ability to provide clarity in the midst of chaos, and they helped Data toward his goal of becoming more "human." As a result, Data grew more relatable and played an integral role in the command staff's decision-making processes.

Lesson Learned: Understand the value of different types of robotics data and develop those resources to complement your operations. For example, some data fuels your operations much like antimatter fuels the Enterprise's warp drive. Sourcing better mapping, traffic, and weather data can help robots improve navigation through their operating environments and perform tasks, all with enhanced safety.

Other robotics data functions as product, affording companies the opportunity to earn profit like the highly capitalistic alien species, the Ferengi. Raw sensor data can be sold directly to end users to support basic operations or further refined to generate even more valuable insights such as predictive maintenance schedules and crop irrigation optimization.

Still other robotics data can be used to improve technology, much like the Borg adapted their shields to the frequencies of Star Fleet phasers. For example, captured telemetry data and imagery can be used to train machine learning and artificial intelligence algorithms used in autopilots, computer vision, and the like.

When combined with intuitive thinking and powerful analytics, robotics data can become an extremely valuable asset to any company and thus warrants creative leveraging and robust protection.

Lesson #2: Prove Your Case With Data

Data famously portrays Sherlock Holmes in many mystery simulations on the holodeck. Like Sherlock Holmes, Data's positronic brain is wired to seek out and leverage evidence in support of his theories and conclusions. Data is thus very successful in proving his case to others when the game is afoot.

Lesson Learned: Companies can leverage robotics data to convince regulators and insurers to grant

regulatory approvals and favorable insurance premiums. For example, drone companies routinely submit aircraft performance and reliability data when seeking waivers to various Federal Aviation Administration (FAA) regulations to prove that the proposed drone operations can be conducted without jeopardizing the safety of other aircraft or persons on the ground.

Likewise, data evidencing safe and effective operations is critical for obtaining 510(k) approval from the Food & Drug Administration (FDA) for medical robotics and obtaining governmental approval for operating autonomous vehicles amongst other vehicular traffic and pedestrians. In an insurance context, some insurers may charge high premiums or deny coverage altogether for robot-supported operations due to a lack of industry data from which to assess risk.

However, a number of insurers are warming to issuing more favorable policies when OEMs and operators provide data demonstrating strong safety records, especially when robots replace humans in performing dangerous jobs.

Much like in three-dimensional chess, it can take time to get all of the right pieces of data in place for success, but one might say the value of doing so is elementary, my dear reader.

Lesson #3: Take Command of Your Data

In one episode, *Star Trek*'s Data is kidnapped during an away mission by a collector of rare and valuable artifacts. Worse yet, the crew of the Enterprise does not know he has been taken, thanks to a ruse by the collector to make it appear as though Data died in a shuttlecraft explosion. But for intense investigation by La Forge, the Enterprise never would have discovered the kidnapping and saved Data from his captor.

Lesson Learned: Others may seek to misappropriate your valuable data and thus it is important to maintain control over who has access to your data and how they use it. This rings true even when working with trusted partners, since misappropriation is often unintentional, yet still potentially damaging to your interests.

Contracts are particularly useful for these purposes. Agreements should clearly define the specific goals of the relationship and create a framework for how exactly each partner is permitted (and not permitted) to utilize the data of the other in furtherance of such goals. For example, say a utilities company hires a service provider to inspect wind turbines for structural defects, and the deliverables are raw imagery and sensor data collected by drones.

The parties may want to consider who can use those data deliverables and for what purpose. On the one hand, the service provider may wish to use the data deliverables to train its data analytics platform, but on the other hand, the utilities company may not want services it is paying for to be used in improving a product from which its competitors might benefit.

Alternatively, the utilities company may be developing its own data analytics platform and the service provider does not want to contribute to its own replacement. The parties would be wise to work out these issues in advance and delineate any boundaries, thus promoting a healthy alliance and peace throughout the galaxy.

Understanding the value of robotics data, and leveraging it while protecting its value, can open up new commercial opportunities and afford significant competitive advantages. Smart robotics companies will prioritize these efforts during their continuing mission to explore new applications throughout the world, seek out new technologies and new partnerships, and boldly go where no robotics company has gone before!

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