The Internet of Things (IoT) is considered a technological revolution of recent times. It has introduced the world to the concept of smart homes, smart cities and even smart. With rapid adoption of IoT, the international maritime technology rules are also changing. More ports are now globally investing in private networks for supporting their personal cloud-based IoT.

A smart port can be defined as a fully automated port that has all devices connected via the IoT Smart Port. It includes a network of smart sensors, data centers and wireless devices that make the key infrastructure of a smart port. This allows the smart port authorities to give important services in an efficient manner. A number of sensors such as ultrasonic sensors, inertial sensors, radars, imaging sensors and RFID readers are used for collecting required data and transform the port into a smart port.

Sea ports require many people, computers and machines to work together every day. The true challenge lies in ensuring that all schedules are timely met, since a delay in shipping can cost billions to the shipping industry. This is where IoT can bring a revolutionary change in ensuring optimum port operations, boost productivity and develop profitable business relationships. Investing in a technology that improves both efficiency and port safety is the best means to remain competitive in the market.

Let’s consider some ways in which IoT technology can boost efficient smart port operations.

**Container Management with IoT-based Digital Manifests**

In order to ensure a widespread adoption of IoT in the maritime industry, the first step is IoT enabled infrastructure and container management. Sea ports can begin by adopting digital manifest devices. Ports that still use paper manifests or those that are not attached directly to the container, misplacement and losses are not so infrequent. Furthermore, manual tracking of cargo not only slows down the delivery, it can also place undue burden on customs for international arrival and [payments](http://www.cardzgroup.com/ContactSmartCard.html). On the other hand, IoT manifests are fast to read and send and can also be used alongside the tracking technology.

Hence, each container that leaves or arrives at the smart port can have an IoT device that helps identify the container’s contents in detail. This device can be connected to the port’s network and be readable through cloud by the port employees or authorized partners that are waiting for a delivery. Similarly, manifest devices can also tag warnings, certifications and safe inspection protocols.

**Faster Repairs and Maintenance with Improved Operational Safety**

Safety has always been a concern for ports, and its always challenging to plan and schedule regular inspection and maintenance. IoT’s comprehensive monitoring applications can play a positive role in achieving the required level of safety. In manual handling, most decisions are based on speculations instead of updated data. With sea ports running against the clock to avoid penalties, expenses and delays pertaining to fixing broken gears, it’s important to create a safety management program.

Smart ports with IoT can simplify repairs and maintenance with performance monitors attached to pumps, engines or gates to get real-time data on speed and reliability of performance. Even in case of a mechanical failure, performance sensors can enable repair team to easily locate the issue and resume operations much faster.

Ports can also avoid potential security breach with IoT. Creating an alert system that connects to the cloud can facilitate quick loss prevention. Moreover, digital seals can be used to authenticate a chain of custody at each security checkpoint to check against tampering.

**Fleet and Traffic Management**

With ports getting busier than ever, IoT can help collect, store and analyze traffic pattern data for every fleet. Integrated sensors can monitor everything about number of ships passing through a lock, their class and other details can help in planning port expansion, create new safety procedures and justify repairs.

**Conclusion**

The future based on IoT is already here. Smart ports will attract new clients, improve fleet safety and provide desired data to make better decisions. Ranging from airports to trucking, IoT has already made its way in industries based on logistics, and it’s time for ports to do the same.