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Port Of Damietta IT System Evaluation and Recommendations

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Port Of Damietta IT System

- Port has state-of-the-art IT system.
- It has sufficient funds to purchase IT systems. However, it can benefit from technical assistance.
- Areas of improvements that are needed:
 1. Wireless Network (for container terminal management system) is behind schedule. Report will discuss options for addressing this issue.
 2. The Vessel Traffic Services (VTS) are adequate. Recommend upgrades when new container terminal becomes operational.
 3. Better use of Data by introducing an Executive Information System.



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Wireless Network

- The port selected deployment of wireless network compliant with IEEE 802.11b standard and specified the traditional 2.4 GHz frequency band. This network was inadequate for proper operation of the system.
- It is worth noting here that 5.8 GHz band provides two main advantages:
 - Higher Performance.
 - Less Radio Frequency (RF) Interference.



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Wireless Network

- However, due to the regulatory limitations in Egypt, port did not receive approval from the NTRA to use the 5.8 GHz band and was limited to the 2.4 GHz band.
- An alternative solution was to use “Mesh Technology”.



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Mesh Wireless Networking

- Mesh networking has been around for years.
- Now, 802.11s is reserved for mesh networking standard. The IEEE expects to have this standard ratified this year (2008).
- Instead of the current hub-and-spoke model of wireless communications, with every device connecting to a central access point, with mesh networking every device in the area acts as a repeater or router, relaying traffic for everyone else.
- Mesh-enabled devices in close proximity to each other automatically create a wireless mesh network, and traffic hops from device to device until it reaches the nearest Network access point, reducing the need for central antennas, and improving wireless coverage.



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Wireless LAN Deployment

Before deploying any wireless LAN, it's very important to perform an RF site survey with the goals of detecting the presence of potential RF interference and determining the proper placement of access points .



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Recommendations to reduce RF interference

- Analyze the potential for RF interference
- Prevent the interfering sources from operating
- Provide adequate wireless LAN coverage
- Set configuration parameters properly.
- Deploy the newer 802.11s wireless LANs



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General steps for RF site survey

- Obtain a facility diagram.
- Visually inspect the facility.
- Identify user areas.
- Determine preliminary access point locations.
- Verify access point locations.
- Document findings.



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Tools To Simplify 802.11 Deployments

- Basic tools
 - Laptop equipped with an 802.11 PC Card and site survey software
 - Displays strength and quality of signal emanating from the access point. This helps determine effective operating range between end users and access points.
- Advanced tools
 - 802.11 spectrum analyzer graphically illustrates amplitude of all signals falling within a chosen channel. This enables to distinguish 802.11 signals from other RF sources that may cause interference, making it possible to locate and eliminate the source of interference or use additional access points to resolve problem.



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Vessel Traffic Services (VTS)

- Currently installed VTS at the port is a basic Automatic Identification System (AIS) / Radar system displaying targets on basic low resolution displays.
- Upgrade recommendations include high resolution displays, new operation consoles, and higher definition redundant radars.
- Detailed specs would be developed after detailed site survey.



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Executive Information System

- Recommend better use of data by introducing an Executive Information System.
- EIS is a type of management information system intended to facilitate and support information and decision making needs of senior executives by providing easy access to both internal and external information relevant to meeting strategic goals of organization.
- EIS is a software module to be developed and added at minimum cost.



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Executive Information System

- Commonly considered as a specialized form of a Decision Support System (DSS).
- The emphasis of EIS is on graphical displays
- Offers strong reporting and data analysis capabilities.



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Executive Information System

- EIS is enterprise-wide DSS that help top-level executives analyze, compare, and highlight trends in important variables so that they can monitor performance and identify opportunities and problems.
- New name for EIS is Business Intelligence



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Summary

Recommendations

1. Accelerate implementation of Wireless Network (for container terminal management system)
2. Upgrade Vessel Traffic Services (VTS) when new container terminal becomes operational.
3. Better use of Data by introducing an Executive Information System.
4. IT technical Assistance is needed.