

# **EMERGENCY INFORMATION SYSTEM PROJECT DESCRIPTION**

## **1. Background**

*Critical Systems Pte Ltd* have been contracted by the Singapore *National Emergency Authority* to undertake an Emergency Information System project to provide information to assist the authority in managing major emergency incidents.

## **2. User Requirements**

The aim of the system is to provide information that is critical to an emergency commander during an incident. The requirements have already been fully specified in a user requirements specification document. The key requirements are:

- a. A Geographical Information System (GIS) is required to be used to display incident management data and to access data concerning the incident location. The GIS map data is required to be purchased from a specialised supplier of digitised map data.
- b. Users are required to be able to look-up the status of incident management resources, such as fire appliances, ambulances, police vehicles and manpower via the GIS map display.
- c. Users are required to be updated on the location of vehicles and incident management locations (such as command posts) via the GIS map display.
- d. Users are required to be able to create and view situation reports concerning the incident.
- e. Users are required to be advised on a transportation closures, such as road closures, via the GIS map display.
- f. Users are required to be able to access details of incident sites (such as factories, chemical plants etc) via the GIS map display, such as the types of dangerous substances stored at the location, estimated size of inventory etc.
- g. Users are required to access demographic data concerning the affected area of an incident via the GIS map display.
- h. Users are required to be able to look-up information in emergency management databases to obtain advice on how to manage the incident. These databases are required to be purchased from specialised suppliers of such information.
- i. Users are required to be provided with advice on the predicted extent of the effect of incident, by viewing the results of emergency modeling and prediction software on the GIS map. A number of such programs exist on the

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market. The most appropriate program to meet the needs of the users is required to be purchased and integrated into the system.

- j. Users are required to be able to access the system from static locations (offices of the *National Emergency Authority*) and also from mobile units, particularly those users deployed in a command post at the incident site. To achieve this, all users will be provided with Notebook computers, and will access the system through a Wireless Local Area Network. A central server (located at the main office of the *National Emergency Authority*) is required to be provided to store the various data of the system. Specific requirements have been defined (in terms of response times) for data access across the network.

### **3. Documentation Requirements**

To support the development and use of the system, *Critical Systems* are required to prepare and provide the following user and system documentation:

- a. Project Plan.
- b. Progress reports.
- c. User Interface Specification document.
- d. Software Design Specification document.
- e. System Test Plan.
- f. System Test Results document.
- g. Integration and Installation Test Plan.
- h. Integration and Installation Test Results document.
- i. Acceptance Test Plan.
- j. Acceptance Report document.
- k. User Manual.
- l. Programmer's Guide.
- m. Operations Manual.
- n. Installation Manual.

### **4. Training**

*Critical Systems* are required to provide training to all types of users. The total number of trainees that will need to attend the training courses will not exceed 100 personnel from the authority. In providing the training, they are required to ensure the following:

- a. A formal training course should be prepared and agreed with technical representatives from the *National Emergency Authority*. To cover the varied types of users, *Critical Systems* should consider creating several different courses.

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- b. The course(s) should be conducted in appropriate training facilities. A suitable number of offerings of the course(s) should be conducted to provide training for all the trainees.

### 5. Running-in Period

Following user acceptance of the Acceptance Report, a *running-in period* of three months should be allowed during which the system will be used on a day-to-day basis and to support exercises that simulate emergency incidents. Formal user acceptance will be given at the end of the three month period provided that users are satisfied with the system's performance and its conformance to requirements.

### 6. Maintenance

Following the formal acceptance of the integrated and installed hardware and software system, *Critical Systems* are required to maintain the system for a period of two years.

### 7. Timescales and Budget

The *National Emergency Authority* have announced that within 24 months they will unveil their new *State-of-the-Art* system that will be the most advanced of its kind in Asia. To meet this tight schedule, the work undertaken by *Critical Systems* and its subcontractors and vendors must commence by 6 January 2003, and acceptance must be achieved by 31 December 2004. To undertake this project, *Critical Systems* submitted a fixed price proposal for \$2,000,000 that was accepted by *National Emergency Authority*.

### 8. Project Strategy

To address the diverse requirements of this project, the *Critical Systems* project manager has decided to utilise a strategy of subcontracting the specialised parts of the project to appropriate vendors (hence certain responsibilities defined in section 3 will be partially or fully transferred to such vendors, but *Critical Systems* will retain the overall responsibility for delivering the project). *Critical Systems* will provide the system integration services. Fixed price contracts are currently being negotiated with each vendor. Their responsibilities are as follows:

- a. The GIS data will be supplied by *DigiMap Info Services* (a leading local IT services company). This is a standard *off-the-shelf* product of the company. They will also supply appropriate GIS engine software to provide APIs to access and update the GIS data. The company have not yet started developing their engine, but are committed to provide it, along with the data, for use by the project by March 2004. The precise nature of the required APIs have not yet been agreed.
- b. *HazardData Plc* of UK will be contracted to provide a set of emergency management databases and a set of APIs to facilitate access to the data. The

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databases are standard *off-the-shelf* products of the company, but the APIs are being specially developed for this project. The company has committed to deliver the APIs by January 2004, but their precise nature has not yet been agreed.

- c. **Singapore Network and Computer Systems (SNCS)** will be contracted to supply the Notebook computers, the central server, the wireless network and supporting system software (and any necessary additional hardware and cabling to support the network). Their responsibilities include installing and configuring the hardware, system software and networking. They will also provide the required maintenance service for the items they have supplied. SNCS are well known suppliers of hardware to the government. However, this will be their first wireless networking project. They will be using a leading US product, in which they currently have no experience. The company has committed to install all required items by September 2004.
- d. **Emergency Software Systems AG** (a leading vendor from Germany) will be contracted to provide *eMod*, their emergency modeling and prediction software package. This will be specially customised to meet the specific needs of the **National Emergency Authority**, but the precise requirements for the customisation have not yet been agreed. The company has committed to deliver the software by January 2004.
- e. **Data Entry Services** (a small local company) will be contracted to collect, prepare and enter data, concerning incident site locations and demographic details, into the system's database. This company is completely unknown to **Critical Systems**. They were selected because their prices were the cheapest of those that were considered to do the work. They have committed to deliver the extensive data set by September 2004.
- f. **Critical Systems** will be responsible for:
  - i. Developing the application software and performing system testing.
  - ii. Designing and setting-up the system's database on the central server. To facilitate this, a Database Management System (DBMS) will be purchased (eg: ORACLE).
  - iii. Integrating the GIS data, emergency management databases and emergency modeling and prediction software into the application.
  - iv. Preparing all the documentation required.
  - v. Performing integration, installation and acceptance testing.
  - vi. Providing user training.
  - vii. Providing maintenance services for the application software.
  - viii. Providing the overall management of the project.