



► Company Capabilities

C²I² Systems has the capabilities, experience, products and partners to offer turnkey solutions to any enterprise's information technology requirements. These include capabilities in the following specific areas :

- Systems Engineering
- Software Engineering
- Networking Solutions
- Data Communications
- Graphical Man-Machine Interfaces
- Image Processing and Multimedia
- Project Management
- Logistic Support

Outsourcing Capabilities

The Rapid Application Development (RAD) approach applied to many well known commercial operating systems for desktop environments has led C²I² Systems to providing application development solutions for the embedded market. The stringent requirements set for embedded, mission-critical and real-time applications are met by the current approaches being adopted by C²I² Systems for hardware and software application solutions. These capabilities acquired by C²I² Systems to project manage, design, develop and support applications for the embedded market can be exploited by any organisation wanting to outsource their software development.

System Requirements

An embedded application generally requires minimisation of hardware and software resources. Graphical applications require high-speed graphics solutions. Networking applications require high-speed protocol processing, high-bandwidth data throughput, guaranteed delivery latencies, node synchronisation, data timestamping, transparent application interfaces and provision of third party protocols.

Real-Time Systems

Real-Time systems are required to execute multiple, concurrent tasks with hard deadlines; i.e. exhibit bounded and deterministic responses to external events. Compromising these deadlines may have catastrophic results, including loss of life, loss of platform or mission failure.

Real-Time Definition

An action which must be accomplished within an allotted amount of time, failing which such accomplishment has no, diminishing or negative value.

Mission-Critical Systems

Mission-critical systems have differing definitions in military, industrial process control and business environments. The definition provided below applies primarily to military or process control systems.

Mission-Critical Definition

Mission-critical systems are those where failure of execution, or faulty execution, may have catastrophic results, including loss of life, serious injury, loss or serious damage to plant or platform or mission failure.



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In business environments, information systems managers would consider systems where failure could lead to loss of money (e.g. banking), serious inability to conduct business (e.g. online investment systems or accounting systems), or serious operational chaos (e.g. electronic trading systems or electronic data interchange systems), as being mission-critical.

Object-Orientated Approach

C²I² Systems have adopted an Object-Orientated Approach (OOA) to application development. This approach provides for design solutions for both software and systems applications. They have acquired the capability to design, develop and support using a number of object-orientated, high-level software languages.

Acquisition Approach

The development approach involves an iterative design/develop/test/deploy cycle to achieve the best trade-off between cost, performance and timescales.

Software Repository

C²I² Systems current development efforts involve building up an extensive re-useable software repository for applications being developed by the company. The repository allows C²I² Systems to provide cost-effective application solutions.

Standards

Software is developed according to ISO/IEC 12207 Standard for Information Technology using templates from MIL-STD-498 *Software Development and Documentation*. The company is registered as an evaluation company for SPICE (*Software Productivity Improvement through Continuous Evaluation*) in South Africa.

Methodology

Generally, software is developed in accordance with a documented company standard methodology known as C⁵S C²I² Systems C and C++ Coding Standard which uses MIL-STD-498 as a guide.

Documentation

The company uses the Rational Rose CASE (Computer-Aided Software Engineering) tool with SoDA (*Software Documentation Automation*) tool. Generally, the Booch object-orientated notation is used as the standard notation.