Introduction

The Information Systems Department has been established with the mission to understand and rationalize the management of Information Technology within the organization to attain its goals.

The key functions are

- To identify and implement business process automation initiatives
- To manage the design, development, operation and maintenance of enterprise applications.
- To implement software applications and to provide technical support.
- To plan and manage the organization's IT infrastructure.
- To manage the Enterprise Database, optimize performance and ensure confidentiality, integrity and availability
- To define IT Security Policies and enterprise architecture.
- Disaster Recovery and Business Continuity Plan.
- Knowledge management and IT training

The ISD Organization

The ISD organization can be broadly categorized into Head Quarters (HQ), Regional Office and Project Sites.

The team at HQ focuses on,

- Software Development
- Centralized IT Infrastructure Management
- Disaster Recovery Planning.
- Central IT Support for Software Applications.
- Support and Guidance to Regions

The Team at Regional Office focuses on,

- Implementation of Software Applications at Regions
- Regional IT Infrastructure Management
- Operational support to business users.
- Coordination among HQ, Region and Project Sites.
The Team at Project Sites focuses on,

- Implementation of Software Applications at Project Sites.
- Managing site IT Infrastructure.
- Supporting the Data Transfer activities across systems.

A brief Organization structure of ISD is as below.

![Organization Structure Diagram](image)

**Software Development**

L&T ECC Division has always been using the best of Information Technology for its business needs and has developed many In-house packages over the years and this has led to the evolution of flagship In-house Enterprise Applications viz.,

- EIP (Enterprise Information Portal)
- CeMa (Construction Enterprise Management).
- PDSS (Production Decision Support System)

EIP is the online central enterprise portal with key OLTP (Online Transaction Processing) and OLAP (Online Analytical Processing) applications. It also functions as the Central Repository of Data Warehouse with consolidated information from various systems.

CeMa is the stand-alone version of the key EIP modules with a focus on construction management at project sites where permanent connectivity is not feasible. It is tightly integrated with EIP to provide appropriate information to the management.
PDSS is another key enterprise application catering to the needs of Factory Operations. It is also well integrated with EIP.

The key modules developed are,

- Supply Chain Management (SCM)
- Customer Relationship Management (CRM)
- Performance Measurement System (PMS)
- Work Order Management (WOM)
- Financial Accounting System (FAS)
- Asset Management System (AMS)
- Project Management and Planning
- Budgeting System

Apart from the above, modules like CSTI, HSE, Risk MIS etc., are developed on specific requirements from business units / departments.

Latest technologies from Microsoft have been employed to develop these modules. Programming languages like Visual FoxPro, VB ASP, ASP.Net, VB.Net, C# etc has been used to develop the front end with Microsoft SQL 2005 / Oracle 10g as Enterprise Database engines.

**IT Infrastructure**

IT Infrastructure plays a key role in delivering an agile and flexible end-to-end business solution. Hence our organization has invested significantly on the best IT infrastructures which host various software and IT Applications.

The infrastructure components are spread across various domestic and overseas locations with HQ hosting the Data Center and key communication infrastructure components.

The key infrastructure components at the Data Center are,

- Highly redundant Enterprise Storage and Backup
- Enterprise Database Server with 64 bit technology
- Email Server with automatic failover clustering.
- Web Server hosted with 24/7 support.
- Reporting Server

The HQ is well connected with all regions and factories through WAN and also hosts the Gateway to the Internet. Critical Data transactions take place through secured WAN connectivity. Projects sites are connected through Internet.

The key Networking and Communication infrastructure are
• MPLS Connectivity to all regions / factories
• High speed Internet connection
• Ku Band VSAT Connectivity to remote project sites.

With a need to match the speed of technological innovation, ISD is regularly upgrading the underlying infrastructure which is the back-bone of its IT operations.

**Software Implementation & Operational Support**

The implementation of various IT Applications at project sites is handled by the Regional ISD and adequately supported. Project sites with more than 100 Cr contract value has been provided with ISD Staffs at the project site itself.

Regions are also responsible for providing necessary infrastructure support for the implementation of various software applications.

The infrastructure support services at regions are,

• Desktop Management and System Support
• Printer & Other Hardware Accessories Support
• Video and Audio Conferencing Services.
• WAN/LAN Support Services.

**Knowledge Management**

Knowledge Management (KM) plays a key role in mapping, recording, evaluating, stewarding, marketing and growing intellectual capital and knowledge assets of an Organization. Hence adequate focus has been given to KM for managing knowledge by supporting creation, capture, storage and dissemination of expertise in the form of information.

The key focus areas are,

• Managing the proliferation of data and information in complex business environments and allowing employees rapidly to access useful and relevant knowledge resources and best practice guidelines.
• Leverage the expertise of people across the organization and transformation of Information into Knowledge.
• Technology enhancement and knowledge sharing & growth.
• Document Management.
• Engineering Drawing Management.
Research & Development and Quality Assurance

Choosing the right technology is one of the key factors in succeeding the implementation of IT in business operations. Hence we have a dedicated R&D and Quality Team which ensures the adoption of appropriate technology and Quality Assurance.

The key focus areas are,

- Identifying and evaluating new technologies
- Defining Coding Standards and Software Development Life Cycle.
- Instructional Support to Software Developers.

Security & Access Control

With a concern over Information Security, we have access control systems in order to provide the right information to right people.

One must need Security Credentials (username & password) to get into the desired IT systems & applications. Access for EIP, Email, KM Portal, and Reporting Server can be obtained based on request with the approval of the concerned business unit heads.

IT Help Desk

With the mission to provide continuous improvement over customer satisfaction and quality support, we have Helpdesk IT Support which is the single point of contact for handling issues related to software and IT applications.

The key responsibilities are

- Resolving issues posted through Helpdesk Portal.
- Coordination with development team for fixing of software bugs & issues.
- Devising Software testing strategies to ensure that the software applications are adhering to the standards of quality and the end user needs.
- Organizing training on CeMa / EIP and other IT applications and software to enhance the awareness and application usage
**Conclusion**

With our business operations geographically spread across 7 regions, 3 factories, around 350 projects sites and overseas locations, we have the following statistics of our key IT assets to mention.

- Desktop Computers : 7099
- Printers : 2046
- Production Servers : 92
- Laptops : 153
- UPS : 746

The unique nature of Construction Industry and the above statistics highlight the volume & complexity of our IT operations which are spread across globally.