

2.4 Green Supply Chain Management

Green supply chain systems, especially with mobile technologies incorporated in them, are a major component of GEA. They reduce inventories, costs, and carbon. However they require contract negotiations. SCM (Supply chain management) have evolved rapidly to automate and optimize the lifecycle of material procurement. Similarly, SCM are also integral to procurement and use of equipments and corresponding infrastructure. Integration with supply chains has also been studied resulting in integrated SCM (ISCM) and its extended to incorporate environmental considerations within them resulting in Green integrated supply chain management (GISCM) that brings together various stakeholders in the supply chain within and outside the organization.

These characteristics of a good ISCM are converted to handle the environmental issues related to the supply chain. Following are the advantages of GISCM (Green Integrated SCM):

- ❖ Reduction in unwanted inventory.
- ❖ Improved usage of infrastructure/equipment through sharing of resources
- ❖ Reduction in carbon overhead relating to material transfer and storage.
- ❖ Optimize the number of people in handling material.
- ❖ Eliminate business processes that do not add direct value to the most optimum movement of goods, thereby reducing carbon.
- ❖ Real-time integration and improved logistics of distribution centres reduces carbon.
- ❖ Planning the demand and supply, management of infrastructure planning, and planning the production includes environmental consciousness and metrics.
- ❖ Sourcing of materials, services, maintenance of catalogs, collaborative supply management of electronic payments are integrated and measured to ensure reduction in carbon.
- ❖ Integration in supply chain enables optimum product lifecycle management, demand planning, production management, and event management.
- ❖ Improved and effective handling of returns from customers.
- ❖ Mobile supply chain management (MSCM) can bring together, dynamically, factors such as number, location,

and size of warehouses; corresponding distribution centres and facilities; and relationships with distributors and customers.

- ❖ MSCM bring together technology infrastructure, demand planning, forecasting, sourcing, production, logistics, scheduling, inventory, and transportation that are also supported by mobile devices.
- ❖ MSCM can also use radio frequency identification devices (RFIDs) to improve material handling in distribution logistics.
- ❖ At individual customer levels, shipping, receiving, and store deliveries are also improved through mobility resulting in optimized business processes and reduced carbon emissions.

2.5 The Environmental Intelligence Domain

BI (Business Intelligence) can be considered as a technology that enables users to not only access historical and current data but to also create new correlations. These new correlations between data items produce insights that are used in business—to optimize processes, enhance customer experience, and reduce inventories. BI systems typically include online analysis, reporting, data mining, provision of consolidated dashboards, and enabling business performance management.

EI (Environmental Intelligence) combines tools, architecture, databases, data warehouses, business performance methodologies, and quality initiatives in order to produce environmentally responsible decisions and action. EI is further

enhanced by the availability and application of mobility that enhances decision support system (DSS), executive information system (EIS), and knowledge management system (KMS).

This evolving EI complexity is understood as follows:

- (a) **Data:** Identification of carbon data related to equipments (gadgets) across the company that generates greenhouse gases; Provisioning the step-by-step collection and collation of the carbon-related data within the organization.
- (b) **Information:** Analysis and processing of the data in order to provide information to all parties concerned regarding the carbon-position of the organization.
- (c) **Process:** Optimizing procedures and controls within the organization using the concepts of business process modeling (BPM) to ensure efficiency; developing an understanding of process maturity in the context of green processes.
- (d) **Knowledge:** Incorporation of external climate change data such as those provided by governmental bodies or other third-parties, into the internal systems of the company by using WS and Cloud computing fundamentals.
- (e) **Intelligence:** This is the semantic green enterprise, where the systems embrace people machine continuum.

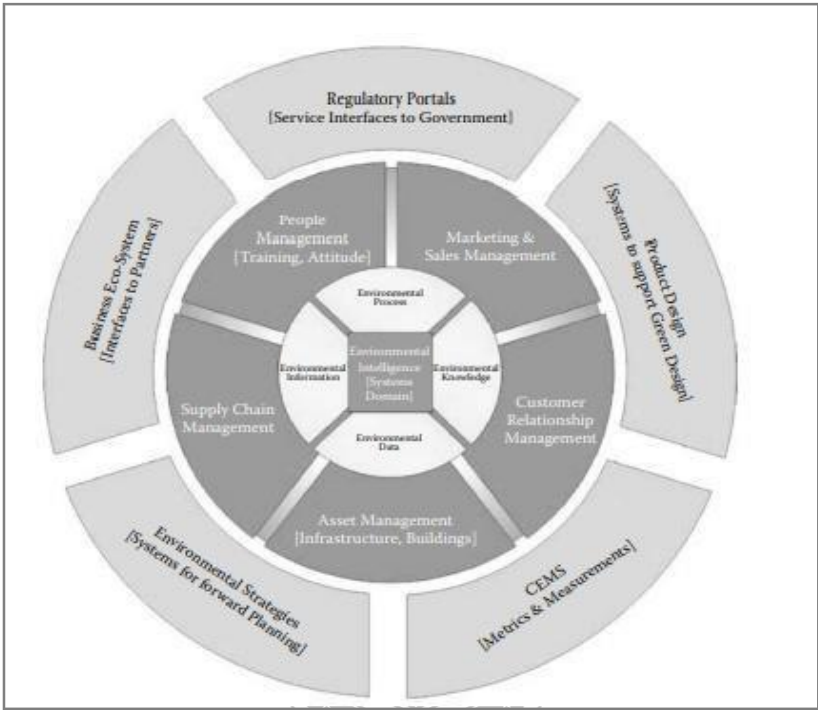


Figure 12: Environmental Intelligence

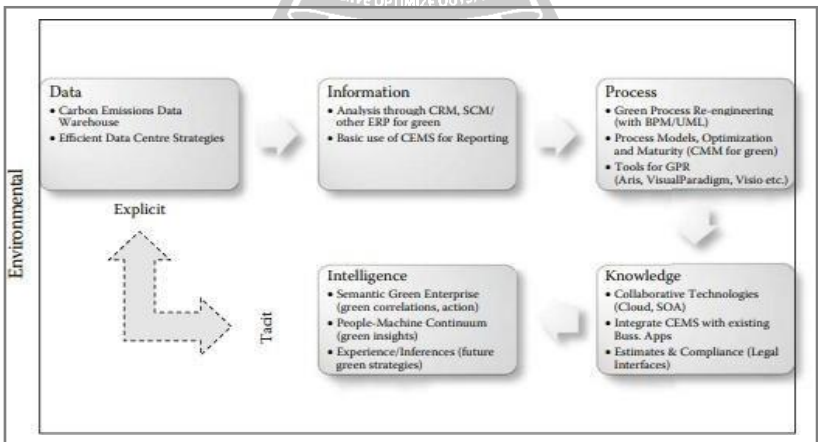


Figure 13: Environmental Intelligence - complexities