



INDIAN INSTITUTE OF MATERIALS MANAGEMENT
Post Graduate Diploma in Materials Management
Graduate Diploma in Materials Management

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PAPER No. 11 (OLD)

LOGISTICS & SUPPLY CHAIN MANAGEMENT

Date : 19.06.2015

Max. Marks :100

Time : 10.00 a.m. to 1.00 p.m.

Duration : 3 Hrs.

Instructions:

1. **PART A** is compulsory. Answer all questions. Total marks = 32
2. From **PART B**, answer any three questions. Each question carries 16 marks. Total marks = 48
3. **PART C** is **Case Study** and is compulsory. Answer the questions reflecting through understanding of the case. Total marks = 20
4. Please read instructions on the answer sheet carefully.

PART A

32 marks

(compulsory- Attempt all Questions each question carries 1 mark)

Q1. State TRUE or FALSE - 1 Mark each

(8 Marks)

1. Logistics is confined only to manufacturing operations.
2. Warehousing activities relate to warehouse layout, design, automation etc.
3. Facilities location and network design is one functional area of logistics.
4. GNI is the sum of a nation's gross domestic product (GDP) plus net income received from overseas.
5. Value chain management is also known as supply chain management.
6. A logistics firm does not integrate major functions in an organization.
7. Supply chain management is management of upstream and downstream relations amongst suppliers.
8. Inbound logistics addresses the bulk movement of material or subassemblies.

Q2. Fill in the Blanks - 1 Mark each

(8 Marks)

1. Containerization has changes the shape of world _____.
2. Three levels of management control are _____, _____ and _____ control.
3. Consumer oriented packaging is designed for consumer's _____ and _____.
4. A _____ is nothing but integration of internal and external functions.
5. Warehousing is important for _____ flow of materials.
6. A storage depot is a type of _____.
7. Truck, rail, water, pipeline and air are transportation _____ options.
8. E-logistics is a group of organizations doing trading through _____.

Q3. A. Expand the following abbreviations (1/2 mark each) (4 Marks)

1. GATT 2. B2C 3. WTO 4. CFS
5. DFC 6. CONCOR 7. IL 8. AGVS

B. Write in brief on any 2 of the following - (2 marks each) (4 marks)

1. What is the concept of packaging?
2. Define demand forecasting.
3. Name different modes of transport.
4. What is outbound logistics?

Q4. Match the following in column A with those in column B - 1 Mark each

(8 Marks)

Column A		Column B	
P	Focus on core competency	B	Selective inventory control
Q	Logistics Activity	A	Warehousing
R	Storage of products	E	FIFO method
S	Transport Component	C	AS/RS equipment
T	Customer priority rules	D	Materials Handling and Storage
U	Golf analysis	H	Equipment, People and Decisions
V	Randomized storage	F	3PL benefit
W	Carousels	G	Order processing

PART - B

Write any three (3) of the following questions – 16 marks each

(48 Marks)

- Q5. Discuss in brief about logistics costs and explain the need to integrate various components of logistics.
- Q6. Discuss in depth distribution considerations and the decisions that need to be taken in various areas of logistics activities.
- Q7. Explain the concept of supply chain management and different components of supply chain.

- Q8. Discuss various warehousing functions and warehousing options with their advantages and disadvantages.
- Q9. Give the various principles of material handling and considerations in designing the material handling system.

PART – C

20 Marks

Q. 10 CASE STUDY (compulsory)

Toronto, Ont.-based Molson Coors Canada is North America's oldest brewer. Founded in Montreal in 1876 by English immigrant John Molson, the company greatly expanded its market over the years. To keep pace with its ongoing business transformation, Molson Coors Canada needed to address a delivery planning system that was decades old, and unable to effectively meet the company's requirements.

Operating six brewery facilities and employing more than 3,000 workers, Molson Coors Canada produces brands that are among the nation's most popular. Coors Light is Canada's leading light beer, and Molson Canadian the number one lager.

As such, the company has to meet demand on a large, growing, and geographically dispersed scale. In Quebec—a province whose territory is nearly three times the size of France—the company delivers to approximately 1,500 retailers and distributors daily.

Part of the challenge Molson Coors Canada faces is managing logistics in a market that has grown in both complexity and size. "As the market changes, so does our way of operating," says James Noonan, project manager at Molson Coors Canada. "The way we build routes has evolved as we've grown."

Updating its delivery planning system was vital. "We needed a system that could accommodate changes to equipment and business practices," explains Noonan.

When Molson Coors Canada began to search for a solution, the company consulted information technology research and advisory firm Gartner's study of logistics technology suppliers to determine the principal players.

Taking an Integrated Approach

Eventually, Molson Coors Canada decided to employ the ORTEC Logistics Execution Optimizer (LEO), supplied by Atlanta-based technology provider ORTEC. A key factor in the decision was the solution's tight integration with Molson Coors Canada's SAP enterprise resource planning (ERP) solution.

The LEO system went live at Molson Coors Canada in January 2013. The company performed a progressive roll out, with half the facilities in Quebec going live first, and the balance going live two weeks later.

"We had been using delivery planning tools for years, implementing our first route optimization system in 1976," notes Michel Hetu, supply chain business partner at Molson Coors. "We improved the system over time. After all that experience, I expected to face obstacles in getting the new system to provide the same or improved capabilities without impacting customers and employees who had become accustomed to the old system.

"But transitioning to LEO was very smooth," he continues. "We accomplished our goal of moving from a system we were comfortable with to an enhanced solution, without upsetting any of our stakeholders."

From a business perspective, LEO met the three principal goals Molson wanted to accomplish with the technology upgrade: building routes, building pallets, and loading trucks efficiently. Further, the integrated solution improved all three functions significantly.

With the legacy system, dispatchers manually performed all interventions to routing, which was a time- and labor-intensive process. While dispatchers are still involved in interventions, now they can call on LEO to optimize the route sequence.

"The intent was to give the dispatcher more time to analyze results, instead of simply making manual adjustments," says Hetu. With LEO, dispatchers can more easily and rapidly analyze and optimize results.

Improved Fleet Utilization

Not only does the system handle routing, it also optimizes trucks and pallets, including how pallets are built and loaded on trucks. Because Molson's fleet comprises various types of trucks, the solution has to accommodate different equipment, available footprint, and order sizes—every element that goes into load optimization. The biggest improvement is that route planning and load building happen simultaneously.

This approach represents a significant step forward. Route planning and load building have historically been two distinct, siloed steps, resulting in the need for dispatchers to intervene with intensive manual adjustment. Integrating the functions not only reduces this need, but also frees dispatchers to pursue other opportunities.

Hetu and Noonan cite several other examples of how the new system improves functionality. In the old system, Molson Coors Canada was not using geo-coding—the process of finding associated geographic

coordinates, such as street addresses, from other geographic data. With geographic coordinates, routes can be mapped and entered into geographic information systems.

The company was using what it called "local" and "sub-local" territory planning, but this was much less precise than the information geo-coding delivers. Because having a perspective of the geography is a key element in route planning, the geo-coding capabilities represent an important improvement.

Additionally, the company can now visualize applications—for example, see a truck loading in 3D—and support dynamic routing, capabilities the earlier system didn't provide.

"Another important aspect of this solution is that we gain access to any future technology improvements," says Hetu. "With the legacy system, every improvement meant undertaking a new initiative. But LEO provides enhancements over time as the technology evolves."

Sustainable Gains

Sustainability is a key strategic objective of Molson Coors. In its 2013 Sustainability Report, the company announced that between 2008 and 2012, it saved \$10 million per year due to increased efficiencies, including reduced energy and water use, reduced waste fees and taxes, and sales of materials that it would otherwise have disposed of. Strategic environmental performance goals through 2020 will result in additional savings of \$16 million annually.

In 2013, the company set ambitious new long-term targets to achieve further footprint reductions: 25 percent in energy intensity, 15 percent in greenhouse gas intensity, and 20 percent in water per unit of production by 2020.

Investing in technologies such as the ORTEC LEO optimization suite is in line with Molson Coors' commitment to serve customers quicker, more efficiently, and more sustainably. "The scope of the technology upgrade project was not only to maintain and grow the current business, but also to sustain the business over time," says Noonan. "That was a key requirement, and this solution supports that goal."

Improved carbon emissions and reduced energy usage are among the sustainable goals LEO will help support by optimizing routes, loads, and pallets; reducing load planning time; increasing trailer utilization; and eliminating empty miles.

Trending Now

Molson Coors' decision to integrate route planning, pallet building, and truck loading exemplifies a larger trend in the logistics sector to "do more with less" through dynamic freight handling strategies. Shippers face significant challenges in today's commercial environment:

- Demand variation is high and often volatile.
- Markets—and the supply networks serving them—are increasingly nuanced and complex.
- Multi-channel capabilities are proliferating, increasing pressures on supply networks and underscoring the importance of demand-driven logistics.
- The need for speed is greater than ever—and increasing.

What is sometimes lost in handling these challenges is the power of executing the basics. Molson Coors Canada leveraged new logistics technology solutions to combine the basic functions of routing, pallet building, and truck loading, and gain significant and sustainable advantages.

Questions

1. Discuss the logistical problems faced by Molson Coors Canada.
2. Highlight the logistical business smoothing realized by Molson Coors Canada in the integrated approach.
